

# TARAL-850-855-856-860





Taral Tarım Makina ve Aletleri Sanayi A.Ş.

Maltepe Mah. Hastane Yolu Sok. No:1 P.K. 34010 Zeytinburnu/İSTANBUL Tel: +90 212 5679550 (Pbx) Fax: +90 212 6740679 / +90 212 6121239 e-mail: info@taral.com web site: http://www.taral.com

Form No: 7106093 Revision No: 1 Publish Date: 17/12/2013

# INTRODUCTION

We would like to thank you, our valuable customers, for purchasing this TARAL product.

This instruction manual contains information on the operation, lubrication and maintenance of your tractor. The information contained is comprehensive and essential, and is designed to assist you, even-if unexperienced, in utilizing your Tractor.

If the tractor is sold or transferred to another person, please give this manual to any new owners or operators of the tractor as they may need the information contained.

If you lose this manual, request a new one from the dealer.

How well your Tractor continues to give satisfactory performance depends greatly upon the manner in which it is operated. It is, therefore, requested that this manual be read carefully and kept ready for use so that the operation and maintenance services will properly be carried out in order to keep the tractor in top mechanical condition at all times.

Should any information as to your tractor be required, consult your local dealer or distributor stating the product model and its chassis and engine serial numbers of the Tractor concerned.

We are sure you will be happy with your Tractor.

#### NOTE

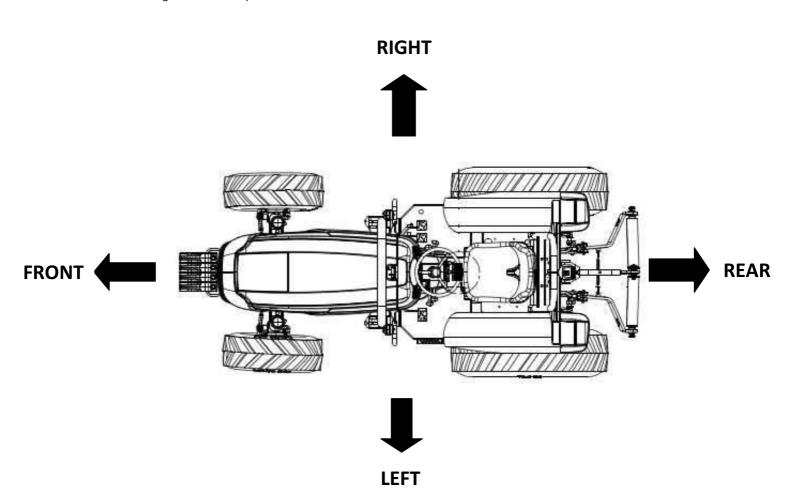
The drawings used in this catalogue are for demonstration purposes only and may slightly be different from your tractor.

# NOTE:

Keep this tractor instruction manual in a safe and convenient place to avoid any damages or wearing. Read this manual carefully when you require any information or have concerns about operation and maintenance of your tractor.

# NOTE:

Expressions such as LEFT, RIGHT, FRONT or REAR used in this manual should be understood in accordance with following rules: FRONT means the front grill end while REAR means the lifting arm end of the Tractor. LEFT or RIGHT means the left or right hand side of the Tractor looking forward from operator's seat.



# TRACTOR TYPE INFORMATION

Tractor Brand: TARAL
Tractor Type: 800D

Tractor Variant: 850D 4WD SWB ÖR

855D 4WD SWB ÖR 860D 4WD SWB ÖR 856D 4WD SWB ÖR 856G 4WD SWB ÖR 855G 4WD SWB ÖR 856G 4WD SWB ÖR 856G 4WD SWB ÖR 850G 4WD LWB ÖR 855G 4WD LWB ÖR 856G 4WD LWB ÖR 856G 4WD LWB ÖR 856G 4WD LWB AR 855G 4WD LWB AR

Tractor Category: T2

Tractor Trade Name: TARAL 850

TARAL 855 TARAL 860 TARAL 856

TARAL-agrimac 850 TARAL-agrimac 855 TARAL-agrimac 860 TARAL-agrimac 856

856G 4WD LWB AR

Manufacturer of Tractor: TARAL Tarım Makine ve Aletleri

Sanayi A.Ş.

Address: Maltepe Mah. Hastane Yolu Sok.

No:1, 34010, Zeytinburnu,

İstanbul

Telephone: +90 212 5679550 Fax: +90 212 6740679 +90 212 6121239

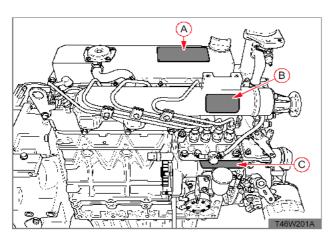
e-mail: info@taral.com
Web site: www.taral.com

# **ENGINE SERIAL NUMBER:**

A: Engine Identification Plate: It is placed on the cylinder head.

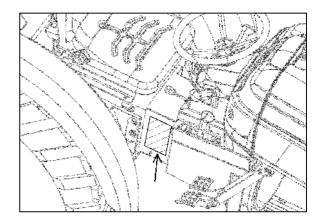
B: Engine Serial Number Barcode: It is placed either on manifold or cylinder head.

C: Engine Serial Number: It is located at the right side of the cylinder block, next to injection pump.



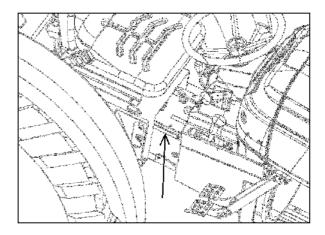
# TRACTOR IDENTIFICATION PLATE:

It is located at the right side of the tractor tunnel (service) sheet.



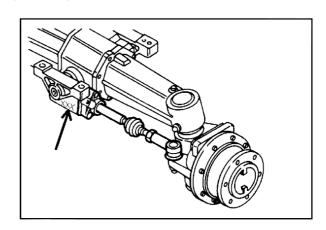
# **CHASSIS SERIAL NUMBER:**

It is placed on transmission case, specifically under the right side of tractor tunnel (service) sheet.



# FRONT AXLE SERIAL NUMBER:

It is placed on the center body of the front axle, specifically at the front side.



# TAKING DELIVERY OF THE TRACTOR

When your tractor is delivered, ask your dealer to perform the first operation and provide you information on instruction and maintenance.

If you have further questions, please contact the factory.

Make sure all components are installed and in perfect working condition before taking the delivery of the tractor. Make sure all accessories are provided, the tool box including all tools is available and no manual is missing. Two ignition keys are delivered with the tractor.

Documentation of the tractor:

Instruction Manual Log Book Warranty Card Service Center List

# THE LIFE OF THE TRACTOR

Tractor is designed to operate for 10 years.

The life of your tractor may be realized or even extended by observing the rules and methods described in this manual, performing scheduled maintenance before and after warranty period at authorized maintenance centers and using original TARAL spare parts.

# WARRANTY

All products manufactured by TARAL and purchased from authorized dealers and services are under warranty.

We recommend you to use original TARAL parts supplied by authorized dealers or services.

Damages resulting from faulty operation, insufficient or late maintenance, use of non-original spare parts or implements not allowed are not covered under warranty.

# NOTE:

The tractor may be operated with several implements; however, this manual may not give information about each possible implement to be used. Consult your dealer or the factory about the conformity of such implements which are not described in this manual, before using them.

TARAL may not be held liable for the damages or unexpected losses that may result from the incorrect installation, handling of undescribed or unapproved implements and/or incorrect operation of the tractor.

# SAFETY

One of the main concerns focused during the development and production of the tractor is operator's safety. Design is composed of several safety issues.

Despite all these precautions, accidents may still occur and most of them are caused due to the safety precautions neglected.

The best way to prevent accidents is to be aware of the possible risks and precautions to be taken and behave accordingly.

Prior to the operation of the tractor, operator must be aware and have a through understanding of the safety warnings and precautions described in this manual.

All protective elements must be in place and undamaged, and if damaged they must be serviced immediately.

Tractor must not be operated without the operator is seated. Ensure that all warning labels is in place and legible, and if not, replace the labels.

Operator of the tractor must always be well-rested and alert and must not be under the influence of alcohol or drug. Persons who use prescribed medicines may not use a tractor without the permission or report by a doctor.

# TREATMENT OF A NEW TRACTOR

All components of your tractor are subject to stringent checking during assembly in the factory. However, a new tractor should be carefully checked over by the operator himself for the first 25—50 hours operation, heavy duty work should be avoided. If heavy duty work is unavoidable, drive in a gear one stage lower than you would normally use, and run the engine at lower rpm.

# "IMPORTANT" 50 HOURS SERVICE

When the tractor is brand new, after the first 50 hours of running, the following service, maintenance and checking should be carried out as specified below.

- 1. Replace engine filter and engine oil.
- 2. Replace transmission oil.
- 3. Replace the oil of front axle.
- 4. Replace traction oil.
- 5. Retighten all bolts and nuts, paying special attention to those for steering linkage and wheel.
- 6. Check and adjust the fan belt tension.
- 7. Check the wheels to see if their condition is good and tire pressure is correct.
- 8. Retighten the cylinder head bolts and adjust valve clearances.
- 9. Replace the air cleaner and clean its container.
- 10. Replace the fuel filter and clean its container.
- 11. Replace the transmission oil filter and clean its container.
- 12. Replace the engine oil filter and clean its container.
- 13. Check the front hub for end-play.
- 14. Check brake fluid.
- 15. Check battery charge level.
- 16. Clean the hydraulic oil filter.
- 17. Check parking brake/foot brakes and clutch pedal free play.
- 18. Check transmission and engine link bolts.

This 50-hour Service is an essential procedure for keeping the tractor in top condition, so it must be done properly.

# **CONTENTS**

| SECTION 1. SAFETY WARNINGS                             | 1  |
|--|----|
| SAFETY PRECAUTIONS                                     | 2  |
| GENERAL OPERATING SAFETY PRECAUTIONS                   | 2  |
| BASIC SAFETY PRECAUTIONS FOR MAINTENANCE               | 3  |
| OPERATING THE TRACTOR                                  | 4  |
| PREVENTING SIDE ROLLOVER                               | 10 |
| PREVENTING REAR ROLLOVER                               | 10 |
| SOUND LEVELS   | 11 |
| WASTE OIL PICK-UP                                      | 11 |
| RECOMMENDED IMPLEMENTS                                 | 11 |
| WARNING LABELS   | 13 |
| SECTION 2. EXTERNAL VIEW AND NOMENCLATURE OF EACH PART | 15 |
| FRONT DASHBOARD CONTROLS                               | 15 |
| TRACTOR CONTROLS                                       | 15 |
| SECTION 3. FUNCTIONS AND USAGE OF PARTS                | 17 |
| INSTRUMENT PANEL                                       | 17 |
| USAGE OF FRONT DASHBOARD CONTROLS                      | 19 |
| USAGE OF TRACTOR CONTROLS                              | 20 |
| TRANSMISSION   | 25 |
| FRONT AXLE   | 25 |
| HYDRAULIC LIFT   | 26 |
| 3 POINT LINKAGE SYSTEM                                 | 27 |
| IMPLEMENT MOUNTING                                     | 28 |
| IMPLEMENT REMOVAL                                      | 28 |
| MIDDLE ARM CONNECTION                                  | 28 |
| HITCH CONNECTIONS                                      | 29 |
| POWER TAKE-OFF HOUSING                                 | 31 |
| DIFFERENTIAL LOCK                                      | 31 |
| HYDRAULIC CIRCUIT                                      | 32 |
| ELECTRICAL CIRCUIT                                     | 33 |
| TIRES AND RIMS   | 34 |
| PIM ASSEMBLY DETAILS                                   | 3/ |

| TIRE MOUNTING                                  | 35 |
|--|----|
| WEIGHTS  | 36 |
|  |    |
| SECTION 4 - OPERATION                          | 39 |
| BEFORE OPERATING THE TRACTOR                   | 39 |
| STARTING THE ENGINE                            | 39 |
| STARTING IN COLD WEATHER                       | 39 |
| AFTER THE ENGINE IS STARTED                    | 40 |
| DRIVING THE TRACTOR                            | 40 |
| STOPPING THE TRACTOR                           | 41 |
|  |    |
| SECTION 5. PERIODIC AND PREVENTIVE MAINTENANCE | 43 |
| GENERAL RULES FOR MAINTENANCE                  | 44 |
| AIR CLEANER                                    | 45 |
| RADIATOR                                       | 46 |
| FUEL FILTER                                    | 47 |
| ENGINE OIL FILTER                              | 48 |
| ENGINE OIL LEVEL                               | 48 |
| TRANSMISSION OIL FILTER                        | 48 |
| TRANSMISSION OIL LEVEL                         | 48 |
| BRAKE FLUID                                    | 49 |
| ENGINE OIL REPLACEMENT                         | 50 |
| TRANSMISSION OIL REPLACEMENT                   | 50 |
| REPLACING THE OIL OF FRONT AXLE                | 51 |
| LUBRICATION TABLE                              | 52 |
| REFUELLING                                     | 53 |
| ADJUSTMENT OF FAN BELT TENSION                 | 53 |
| ADJUSTMENT OF CLUTCH PEDAL                     | 54 |
| FOOT CLUTCH PEDAL                              | 54 |
| HAND CLUTCH                                    | 54 |
| BRAKE ADJUSTMENT                               | 55 |
| FOOT BRAKE                                     | 55 |
| HAND BRAKE                                     | 56 |
| AXIAL TRAVEL ADJUSTMENT OF FRONT AXLE          | 56 |
| ADJUSTING TOE-IN ON FRONT AXLE                 | 57 |
| SAFETY START CONTROL                           | 58 |

| HYDRAULIC CONTROL ADJUSTMENT               | 58 |
|--|----|
| GREASE LOCATIONS                           | 59 |
| INJECTION NOZZLE INSPECTION                | 60 |
| CYLINDER HEAD BOLT TIGHTENING              | 60 |
| VALVE CLEARANCE ADJUSTMENT                 | 61 |
| SETTING INJECTION PUMP TIMING              | 62 |
| ELECTRICAL SYSTEM                          | 64 |
| BATTERY                                    | 64 |
| BOOSTER CONNECTION                         | 65 |
| PROPER BATTERY SERVICE AND TIPS FOR SAFETY | 66 |
| HEADLAMPS                                  | 67 |
| TRAILER SOCKET                             | 67 |
| ILLUMUNATION LAMPS                         | 67 |
| FUSES                                      | 68 |
| GLOW PLUG                                  | 68 |
| RELAYS                                     | 69 |
| STARTER MOTOR                              | 70 |
| ALTERNATOR                                 | 70 |
| INSTRUMENT PANEL WIRING DIAGRAM            | 71 |
| OPENING THE BONNET                         | 72 |
| WASHING THE TRACTOR                        | 72 |
| SECTION 6- STORING                         | 73 |
| STORAGE                                    | 73 |
| REOPERATION AFTER STORAGE                  | 73 |
| SECTION 7. TECHNICAL SPECIFICATIONS        | 75 |
| TECHNICAL SPECIFICATIONS                   | 75 |
| ENGINE SPECIFICATIONS                      | 76 |
| SPEEDS VIA TIRES                           | 76 |
| TURNING RADIUS                             | 77 |
| ENGINE LUBRICATION SYSTEM                  |    |
| ENGINE SPEED GOVERNOR                      | 78 |
| TRANSMISSION                               | 78 |
| CLUTCH                                     | 78 |
| DIFFERENTIAL LOCK                          | 78 |

| COOLING SYSTEM                            | 78 |
|---|----|
| AIR CLEANER                               | 78 |
| FUEL SYSTEM                               | 79 |
| HYDRAULIC PUMP                            | 79 |
| BRAKES                                    | 79 |
| STEERING                                  | 79 |
| FRONT AXLE                                | 79 |
| REAR HITCH                                | 79 |
| MAXIMUM AXLE LOADS                        | 80 |
| POWER TAKE-OFF                            | 80 |
| HYDRAULIC SYSTEM                          | 80 |
| 3 POINT LINKAGE SYSTEM                    | 80 |
| ELECTRIC                                  | 80 |
| CAPACITIES                                | 80 |
| UNIT CONVERSION TABLE                     | 81 |
|   |    |
| SECTION 8. TROUBLESHOOTING                | 83 |
| ENGINE HARD TO START                      | 83 |
| BAD EXHAUST COLOUR                        | 84 |
| ENGINE STOPS ABRUPTLY                     | 84 |
| IN CASE ENGINE IS STOPPED ABRUPTLY        | 84 |
| TRACTOR WILL NOT START                    | 85 |
| TRACTOR WILL NOT START                    | 85 |
| TRACTOR WILL NOT MOVE WITH ENGINE RUNNING | 85 |
| 3 POINT LINKAGE SYSTEM WILL NOT MOVE      | 85 |
| BATTERY PROBLEMS                          | 86 |

# **SECTION 1. SAFETY WARNINGS**

# SAFETY AND WARNING SIGNS AND INSTRUCTIONS

This symbol means be CAREFUL and AWARE; YOUR SAFETY IS IN DANGER.



The symbol above describes significant safety warnings when it is used in this manual. Please pay particular attention when you see this warning and follow subsequent safety precautions.

# WHY IS SAFETY IMPORTANT? ACCIDENTS CAN CAUSE INJURIES AND EVEN DEATH ACCIDENTS ARE COSTLY ACCIDENTS CAN BE AVOIDED



DANGER: When the word DANGER appears next to this symbol, it indicates the risk which may be resulted in serious injuries or even deaths if the subsequent precautions are not avoided.



CAUTION When the word CAUTION appears next to this symbol, it indicates risks which may be resulted in serious injuries or even deaths if the subsequent precautions are not considered and obeyed.



WARNING: When the word WARNING appears next to this symbol, it indicates risks to pay special attention to avoid causing accidents.

# SAFETY PRECAUTIONS

REMEMBER: "SAFETY" IS ONLY A WORD UNTIL IT IS **PUT INTO PRACTICE** 

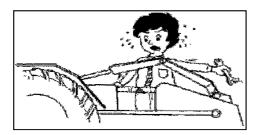
Improper handling of the tractor could lead to an accident. Prior to the operation of the tractor, be sure to read this Manual carefully and have a thorough understanding of all of the contents. In particular, the instructions given in this section entitled "SAFETY PRECAUTIONS" must be strictly followed.

# **GENERAL OPERATING SAFETY PRECAUTIONS**



# MARNING

Observe all the safety precautions in this manual when operating the tractor.

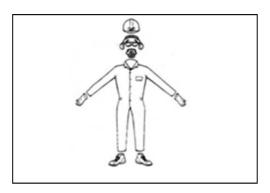




# **WARNING**

Operate the tractor with suitable clothing that will allow easy movement. Avoid loose jackets, mufflers, ties, scarves, or loose shirt sleeves to prevent from being caught by moving parts. Recommended protective items:

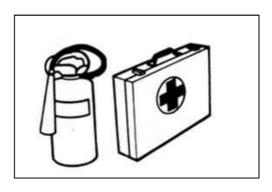
- Helmet
- Mask
- Earphone
- Protective goggles
- Suitable clothes
- Reflective tapes
- Safety gloves
- Safety shoes





# MARNING

It is recommended to have a fire extinguisher and a first aid kit in the vehicle. Operator must know the place and utilization of these equipments.

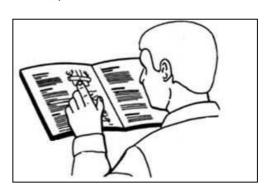




# **WARNING**

Do not allow children or adults having no knowledge of the tractor or tractor operation, to operate the tractor.

If you have any doubts regarding the operation of the tractor, please consult this manual.





# WARNING

Never allow riders on the tractor, hitch drawbar or attachments while travelling and operating them.



# **BASIC SAFETY REQUIREMENTS** FOR MAINTENANCE



# WARNING

Always follow these maintenance instructions before operating the tractor:



# **M** WARNING

Immediately repair the head lights and work lamps required to conform to traffic regulations where the tractor is operated.



# WARNING

Keep tractor steps clean to avoid accidents due to slippage. Dust, mud, snow, ice, etc. must be removed from the pedals and brakes as they may cause slippage.



# **WARNING**

Cover the PTO shaft with a guard when not being used.



# A CAUTION

Be sure to apply the brake and lower any attachment or implement before disassembling any part.



# **A** DANGER

Never adjust or service the tractor when it is in motion or while the engine is running. Always adjust the brake or clutch properly in accordance with the adjusting procedure in the instruction book.



# MARNING

Do not remove the radiator cap while the engine is running. Shut down the engine and wait until it cools sufficiently. For removal, turn the cap to the first stop to relieve pressure. Do not touch engine, muffler, exhaust pipe or exhaust manifold while the tractor is running or just after running, wait until these parts are cold before performing any procedures.





# CAUTION

Hydraulic oil or fuel escaping under pressure can penetrate the skin, causing serious injury. Before disconnecting oil or fuel lines, be sure to relieve all pressure. Before restoring pressure after repair, be sure all connections are tight and all hydraulic components are in normal condition.

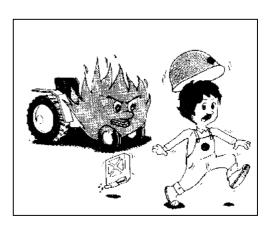
Pressure oil may not be observed visually. You may use a carton for detection purposes. If injured by leaking fluid, see a doctor immediately for proper treatment.





# A DANGER

When refueling, be particularly careful first to stop the engine completely to prevent the fuel from igniting. Never refuel in the presence of an open flame or while smoking. Always use funnel when adding fuel and refuel only out of doors. When refueling is completed, wipe any spilled fuel off the tractor and securely fasten the cap of the fuel tank.





# WARNING

Before driving the tractor, perform daily inspections such as controlling oil level, fuel level, tire air pressure, etc.

# MARNING

Before starting any work on electrical equipment or work that may cause you to touch the electrical part accidentally, first disconnect the battery cables. Never remove the rubber cap cover at the positive terminal of the battery cable end. Before connecting the battery to the charger, make sure that the charger switch is in "OFF" position. Besure to connect the charger to the correct terminals on the battery, (positive to positive, negative to negative). A great amount of hydrogen gas is generated by the battery when it is being charged. Take precautions against fire: Do not have any exposed flame in the area where you are working. Be sure not to cause any leakage of the electrolyte, since it will corrode the skin or clothing. In case of accident as described below, immediately seek first aid, and see a doctor immediately for proper treatment.

- If the diluted sulfuric acid from the battery has gotten into the eyes: Cleanse the eyes with a lot of clean running water for more than 15 minutes, while opening the eyes widely.
- If diluted sulfuric acid from the battery has been swallowed: Rinse the mouth with clean water immediately and drink a lot of raw eggs or milk. Lie down quietly.
- If diluted sulfuric acid has gotten on the skin or clothing: Wash away the diluted sulfuric acid completely with a lot of clean running water and neutralize with soap solution. Then rinse with water.
- If the diluted sulfuric acid is spilled: Wash away with a lot of water or neutralize with slacked lime or bicarbonate of soda.

# **WARNING**

Wear suitable protective equipment such as goggles, mask, gloves, etc. when you are using the tractor for agricultural spraying purposes. Zirai ilaçların teneffüs edilmesi veya direk temas edilmesi sağlığınız açısından bir risktir.Inhalation of, or direct contact with, agricultural pesticides is risky for your health. Daha detaylı bilgiler için ilacın kullanım kılavuzuna başvurunuz.For more detailed information, please consult pesticide manual.

# WARNING

Do not remove the labels on the tractor. If the labels are worn out and become illegible etc., replace them.



# **WARNING**

When you are working the electrical system of the tractor, do not forget to remove (-) terminal.



# **WARNING**

Stop the engine and make sure the PTO shift lever is in neutral before performing any of the following services, including:

- Removal of the propeller shaft between PTO and any attachment,
- Adjustment of PTO drive train and hitch.
- Adjustment or cleaning of PTO driven attachment.



# **WARNING**

The steering wheel always has built-in play to some extent, which is required for smooth working of sector gear and pinion gear. Always inspect the amount of the play. Do not operate the tractor if there is too much or too little play in the steering.

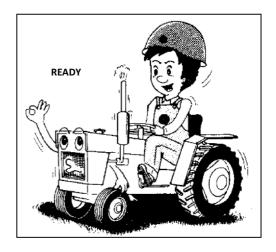
# OPERATING THE TRACTOR

# **Before Starting and Driving the Tractor**



# **WARNING**

Operate the tractor only when seated properly in operator's seat and keep a firm grip on the steering wheel at all times. Never attempt to perform any operation of the tractor from anywhere else, on or off the tractor. Always wear a helmet when operating the tractor. Do not attempt to jump start the tractor, always start the engine with ignition key.



# **Starting and Driving the Tractor**



# **WARNING**

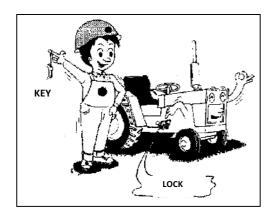
Always operate the tractor at the proper speed which enables you to keep the tractor under your complete control.

To start travelling, lower the engine speed and release the clutch pedal slowly. Abrupt releasing causes the tractor to jump off.



# WARNING

Before leaving the tractor, stop the engine, remove the key, apply the parking brake and make sure that the engine has come to a complete stop, and any attachment is completely touching the ground. Do not leave the seat before tractor and the implement stops completely.





Slow down when operating the tractor on rough ground.



# WARNING

Never attempt to jump on or off a moving tractor.





# CAUTION

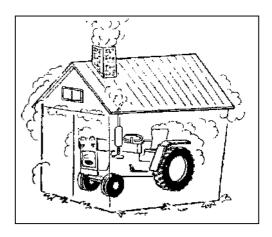
When starting the tractor, operating any attachment or engaging the PTO make sure that no one is in the way, especially children.





# A DANGER

When starting the engine in an enclosed area or building, ensure proper ventilation by opening the doors and/or windows to prevent carbon monoxide inhalation. Mount the extension exhaust pipe on the tractor which has a cabin.



# A CAUTION

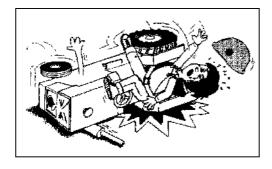
If ROPS is folded, level it down, fasten the seat belt before using the tractor and keep it fastened while in operation.





# DANGER

It is not recommended to use tractors without ROPS.



# **Travelling on Roads and Streets:**



# **A** CAUTION

Prior to the operation of the tractor, be sure that all functions described in this manual perform properly.



# **WARNING**

Operator must know local traffic rules and laws and has a valid driving license for driving on road.



# WARNING

Ensure that the plate is placed so that it is visible during travelling and all documents that may be necessary are around.



# DANGER

Do not allow children to use the tractor or hitch any implement to the tractor.

Ensure that the glass of the lamps and signals are clean.



# WARNING

Keep rotating beacon lamp on when travelling on road, this will help other vehicles that are distant, behind a hill or out of the field of clear view to notice you easily.



# 🚹 DANGER

For travelling on roads and streets be sure to lock both brake pedals together before driving to prevent either brake from acting independently.





# **CAUTION**

Never operate the differential lock while driving at high speed or travelling on the road. For driving the 4-WO tractor on the road, be sure to place the 4-WD shift lever in OFF position.



# DANGER

In case you notice a loose bolt or any damage on some of the equipments or parts, stop the tractor immediately and do not turn back to working until the failure/problem is solved.



# CAUTION

Be sure that PTO is deactivated, brakes are linked and the differential lock is released.



# **A** DANGER

Safety frame must always be rolled out (unfolded) and in undamaged condition. Do not perform any modifications on the safety frame for any purposes.



# **A** DANGER

Always fasten your seat belts when using the tractor.



# A DANGER

Always operate and stop the tractor while you are seated.



# **CAUTION**

When safety frame (ROPS) is open, be careful while passing under bridges, canals, low-height structures or electric cables in order to eliminate the risk of banging into them, if there is risk, you can fold up the safety frame temporarily, when the obstacle is passed return the safety frame to its initial position and continue to travel.



# DANGER

Tractor is only for 1 person; do not carry any other passengers on the fender, bonnet or other components of the tractor.



# A DANGER

Be sure that there is not any person in the circle of the tractor while maneuvering.



# A DANGER

Do not perform any adjustments, mounting or demounting while the tractor is operated.



# A DANGER

While mounting, removing or using an implement, be sure that there are no persons between the tractor and the implement.



# 🔼 DANGER

Do not attempt or allow others to attempt to operate the tractor or reach to the control levers from the area on which the implement is mounted.



# **A** CAUTION

Never remove or mount the implements when the tractor is operated or the parking brake is not applied.



# A DANGER

Do not allow any person under the implement, when the tractor is operated and the implement is in use.



# **WARNING**

Move the implement to the carrying position on road and tie and carry it without interrupting the driving and view of other travelling vehicles.



# **WARNING**

Avoid operating the tractor close to the areas where fixed obstacles such as walls, fences, etc. are present as they may restrain the maneuver capability of the tractor.



# **CAUTION**

Do not use the tractor on neutral position, especially when operating on downward slow, be sure that the tractor is in gear.



# **A** CAUTION

If the road is wet or slippery, pay particular attention.



# **WARNING**

Lower your speed when approaching to hills.



# **WARNING**

Signal before turning.



# MARNING

Control the traffic on the intersections or while crossing; start crossing if the traffic allows.



# **WARNING**

Do not try to pass cars on road.



# MARNING

If the traffic behind becomes busy, pull over at an appropriate place and give way to the vehicles behind.



# **WARNING**

While driving and working during night time, turn on the lights; maintain your speed lower than your daytime speed; and turn on the work light for better sight when working night time.

# **Steering and Turning the Tractor**



# A CAUTION

Slow down your tractor and disengage the differential lock before going into a turn, being careful to prevent any attachment mounted on the front or rear from hitting anyone or anything. Note that the turning radius may be higher especially with large implements.

# **Towing and Operating on Hills**



# A CAUTION

For towing work on downward slope, place the shift lever in low speed and use engine brake. Never try to reduce the speed with brake only.



# **WARNING**

Towing a heavy object on a hill is highly hazardous. Widen the tread of the tractor and mount the wheel weight or chassis weight to increase the stability and operate with extra caution. If necessary, connect front wheels drawbar (4WD).





# A CAUTION

When operating the tractor on higher a steep slope or flat ground, be sure not to suddenly steer, brake or operate clutch or attachments.



# **A** CAUTION

Do not operate the tractor at the edge of cliff or steep slope. Be particularly careful right after the rain when soil is soft and may give way easily. If necessary, connect front wheels drawbar (4WD).



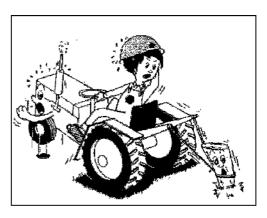
# **A** CAUTION

Always load the tractor based on the axle loads defined in this manual while towing with tractor.



# A CAUTION

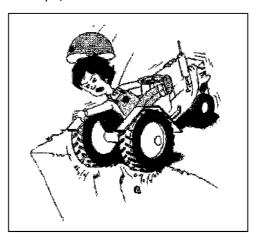
For towing, be sure to use the drawbar only. Set the hitch point below the center line of the rear axle. When using a chain, never try to move forward abruptly. When using a long chain or cable to hitch the tractor to the load, drive the tractor forward slowly until all slack is taken out.





# A CAUTION

Avoid operating the tractor on an extreme slope that appears hazardous, when forced to operate on such slope, use extra care.



# A CAUTION

Driving forward out of a ditch or mired condition or up a steep slope could cause tractor to tip over rearward. Back out of such situation if possible. If the situation does not permit you to back out, use the front wheel weight or the chassis weight for balancing the tractor lengthwise. Also in case any extra heavy rear mounting attachment is used, try to obtain better balance in this manner.

# **A** CAUTION

When backing down a slope in reverse gear or going up the grade in forward gear, never operate the clutch, brake, throttle lever or steering wheel abruptly. Be particularly careful on slippery roads.



# **WARNING**

In any case of towing (by use of a rope or by hanging up the front), be sure to place the both main shift lever and sub shift lever at "NEUTRAL' position so long as the rear wheels are on the ground. These shift levers shall not be placed at any other speed range. If the front tires are contacting the ground, 4-wheel drive shift lever should be placed in 2WD position in addition to the precautions described above.



# **WARNING**

When starting the engine by towing the tractor with a battery as discharged, be sure to place the main shift lever at the 4th speed step and the sub shift lever at the high speed step, then operate the clutch slowly. Never place the sub shift lever at the low speed step.



# **WARNING**

When towing the tractor, be sure to keep the safety speed. It is advisable to operate at 10 km/h or less in towing the tractor under 20 HP and at 15 km/h or less in towing the tractor over 20 HP.



# WARNING

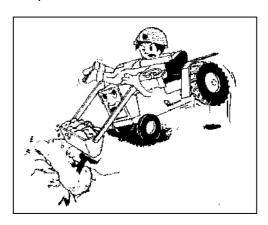
When towing or running on a steep downward slope, be sure to apply the engine brake to keep safety speed. Never run by inertia (coasting) with main shift lever placed "NEUTRAL' position or the clutch disengaged.

# **Using attachments**



# **WARNING**

To mount or operate attachments, follow the instruction manual for the particular attachment for safe operation.





# MARNING

When using agricultural chemicals with an attachment on the tractor, always follow the Instructions in the manual for the attachment as well as the Instructions provided by the chemical manufacturer.



# **A** CAUTION

It is not recommended to use or mount heavy work equipment such as front loader, front shovel, rear shovel, crane, etc. with this tractor. The tractor is only suitable for agricultural purposes.

# **Roll Over Protective Structure (ROPS)**



# CAUTION

We strongly recommend a ROPS (Roll Over Protective Structure) install to your tractor. It must not be removed even temporarily. It must not be folded when travelling. It is not recommended to utilize additional elements to perform drilling, welding or reinforcement on the construction, this procedure will weaken the construction. If any damage is observed on the construction, it must be repaired at a technical service or replaced. Exercise good care in seat belt Installation as regard belt strength and the bucket, which must not be broken off or disconnected. For further details, ask your authorized technical service.



# PREVENTING SIDE ROLLOVER

- Adjust thread to the widest range suitable for the desired work.
- Lock brake pedals together prior to driving at carrying speed.
- Lower the speed according to working conditions.
- Make wide and slow turns at low speed. Do not allow tractor to shake, you may lose steering control.
- Do not tow loads too heavy for tractor. The vehicle may slip out of control or twist around the load while operating on downward slope.
- Apply the brake properly and gradually; avoid applying the brake abruptly.
- When running on a downward slope, be sure to apply the engine brake to lower the tractor speed and when operating downwards maintain the same speed you apply while climbing.
- Engage the 4-wheel drive so that you can apply brake to all 4 wheels.
- Do not disengage the clutch or shift gear when operating on downward slope.
- It is more likely for the tractor to rollover while driving straight up or straight down on a steep slope compared to rolling over while traversing the slope.
- Do not cross steep slopes; if necessary, avoid holes, depressions or other similar irregular terrains as much as possible. Avoid any tree roots, bumps and elevated areas on the uphill side of the slope. While working near ditches and heaps, keep the tractor always behind the slippage line. Avoid ditches, embankments, heaps and river banks that may collapse.
- If you are driving the tractor on a hillside that is too steep, do not turn to the uphill side of the slope; slow down and make a wide turn if necessary. Drive directly over the slope, or, if not possible, cross it upwards or downwards; however, do not attempt to traverse the slope. When crossing the slope upwards or downwards, the heavier part of the tractor must be always on the uphill side of the slope.

# **A** CAUTION

# PREVENTING REAR ROLLOVER

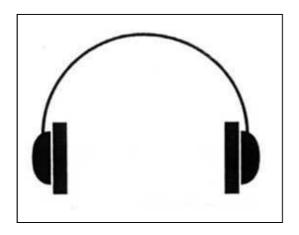
- Do not pull loads using 3 point linkage arms or rear axle center line. Use only the hitch hooks to pull loads.
- Hitching the load at a high point may cause rear rollover and this may lead to serious injuries and death. Link the loads to the hitch hook only.
- Add front-end weights when pulling heavy loads to counterbalance the tractor or the heavy rear mounted equipment.
- Start forward motion slowly and raise speed gradually. Do not raise the engine speed or engage the clutch. If the tractor is linked to a heavy load or stationary equipment, improper engagement of clutch may cause a rollover.
- If the front-end of the tractor raises upwards, lower your speed and engage the clutch if required.
- If the tractor is stuck in the mud or terrain, do not attempt to move forward. If there is a hitched equipment, remove it and back out. If not possible, get another tractor to pull it out.
- If you are stuck in a ditch, back out of it where possible. If you drive forward, move slowly and carefully.
- If stuck in a ditch, the tractor and, if any, rear mounted equipment can be backed up steep slopes, and come down forward slowly.
- While operating on downward slope, always keep the tractor in gear; do not drive the tractor while it is out of gear or the shift is placed in the neutral position.
- Prefer flat grounds to change speed, make proper shift adjustment and start driving. Do not change these adjustments and try to maintain them while driving up or down on a slope, wait until you get to a flat ground to make adjustments if necessary.
- Choose a flat area to park the tractor.

# **SOUND LEVELS**

According to 2009/63/EC, the noise level measured is 79,1dB(A), and as per 2006/26/EC the noise exposed by the operator is 85,9dB(A). These values can vary depending on models, refer to product values.

According to the NIOSH criteria, the maximum exposure must be limited to 8 hours for 85dB, without additional precautions are taken.

Persons who are exposed to noise must take additional precautions according to their exposure time and the level of the noise. We advise you to wear earphones for such cases.



# **WASTE OIL PICK-UP**

After replacing oil, deliver the used oil to a waste oil facility. 1 liter of oil can pollute 1 million liters of drinking water.

Environmental awareness is an responsibility and a legal obligation.

If you are not able to find a suitable waste oil facility, consult authorized distiributor dealers.



# CAUTION

It is not recommended to use or mount heavy work equipment such as front loader, front shovel, rear shovel, crane, etc. with this tractor.

The tractor is only suitable for agricultural purposes.



# A CAUTION

Do not operate the tractor on slopes with an incline above 20°; this may cause problems related to the lubrication of the engine and accordingly to mechanical components.



# MARNING

It is not recommended to use tires other than the ones given with the tractor or described in this catalogue. Since the tractor is a 4-wheel drive, the tire pairs must be compatible with one another. Front tire slip angle is designed to be 1%-4% greater than rear tires. Other values may cause tire wear and are not recommended.

Replace your tires with tires in the same sizes from the same brand.



# A WARNING

We recommend using only low-sulfur (No. 2) diesel for fuelling. The clarity and purity of the fuel used has a significant impact on the life of the engine injectors, pumps and other components of the fuel system, and the components of the combustion chamber. Use of low-quality diesel will reduce engine power and consequently the efficiency of your tractor. Use of high-quality diesel reduces negative impacts of the exhaust emissions on the environment.



# **WARNING**

Do not throw away or scrap the waste oil or components like end-of-life tires or batteries after replacing them. These components contain materials such as rubber, heavy metals and acid, and therefore they are very harmful to the environment.

They must be delivered always to recycling facilities. If you are not able to find a suitable facility to deliver such components- consult your dealer.

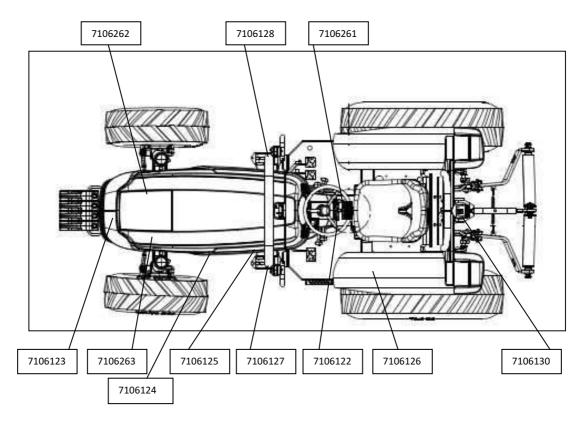
# **RECOMMENDED IMPLEMENTS**

There are a number of implements available which match the 3-point linkage system of the tractor. When mounting and using these implements, it is very important you load the tractor according to the permitted axle loads, otherwise unexpected failures or accidents may occur.

For main implements that can be mounted to the tractor, use the recommended implements listed below:

- 1. 4 disc 9" plough.
- 2. 6 lines, 24 blades 850mm and 1500mm rotary
- 3. 400lt mounted pesticide tank
- 4. 2000lt pull-type pesticide tank.

# LOCATION OF WARNING LABELS



# 7106122

On the left side of the service sheet.

CAUTION: Before leaving the tractor, apply hand brake and lower the equipment to the ground. Stop the engine and remove the ignition key. If the engine needs to be left running, apply hand brake, lower the equipment, place the shift and PTO shaft to the first position.



# 7106124

On the left side of the axle carrier.

CAUTION: Always remove the (-) terminal before performing any procedures on the electrical system.



# 7106123

Next to the battery.

CAUTION: When working on the battery or electrical circuit, remove the negative terminal of the battery from the electrical circuit.



# 7106125

On the starter motor.

DANGER: Do not start the engine using control lead; this may lead to serious fatal accidents. Start the engine only when you are seated.



# 7106126

On the left fender.

CAUTION: Do not carry any other passengers on the fender or any other place or on an implement.



# 7106261

On the service sheet.

CAUTION: Read the information about safety and operation of the tractor defined in maintenance and instruction manuals.



# 7106127

On the left side of the safety frame.

CAUTION: Risk of rollover. Do not remove the protection bar, or perform drilling or welding on it and do not hitch any implements to the bar.



# 7106262

On the right side of the radiator separator sheet.

CAUTION: Pressure hot water vapor. Protect your face and hands while the radiator is hot, radiator contains a certain amount of pressure. Wait until the engine cools down before opening the cap and turn it slowly to allow pressure to escape.



# 7106128

On the right side of the safety frame.

DANGER: Hold the steering tightly in case the tractor rolls over, protection bar protects the driver unless he attempts to stand up and leave the tractor.



# 7106263

On the left side of the radiator separator sheet.

CAUTION: There are hot surfaces, stay at a safe distance.

CAUTION: There are moving parts. Keep your hands away from the belt and moving parts while engine operates. Ensure the protection sheets are in place.



# 7106130

On the power take off housing.

DANGER: Stay away from the rotary power take off and the connected shaft. Do not attempt to disconnect the cardan shaft from the power take off. Ensure tractor, cardan shaft and implement protections are properly installed and secured.



# SECTION 2. EXTERNAL VIEW AND NOMENCLATURE OF EACH PART

# FRONT DASHBOARD CONTROLS

- 1. Ignition Key
- 2. Rotating Beacon Lamp Control
- 3. Work Light Control
- 4. Instrument Panel
- 5. Hazard Warning Light Control
- 6. Differential Lock Control
- 7. Illumination, Flasher and Horn Control

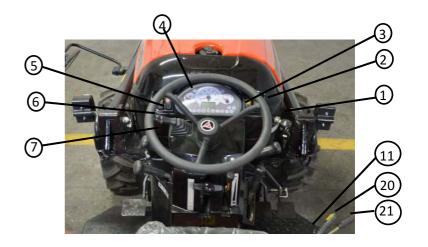


Figure 1

# **TRACTOR CONTROLS**

- 8. Operator's Seat
- 9. Shift Lever
- 10. Hand Throttle
- 11. Gas Pedal
- 12. Speed Shift Lever
- 13. Brake Pedal Lock
- 14. Right Brake Pedal
- 15. Left Brake Pedal
- 16. Clutch Pedal
- 17. Hand Operated Clutch Lever
- 18. Power Take Off Lever
- 19. Shuttle Shift Lever
- 20. Position Control Lever
- 21. Depth Control Lever
- 22. Parking Brake
- 23. Power Take Off Speed Lever
- 24. 4-Wheel Drive Lever
- 25. External Power Outlet Lever

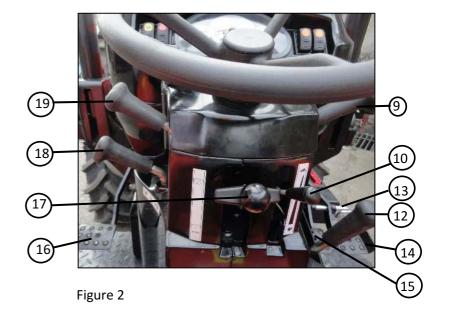




Figure 3

# **SECTION 3. FUNCTIONS AND USAGE OF PARTS**

# **INSTRUMENT PANEL**

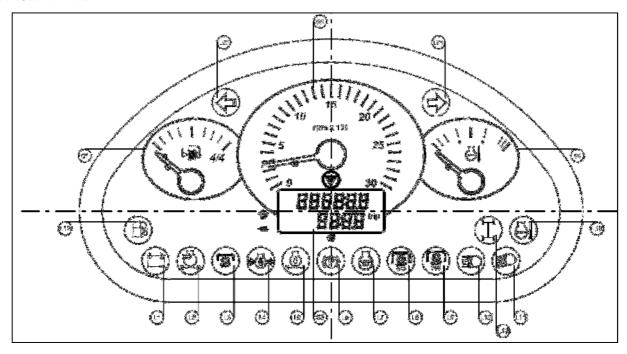


Figure 4

- S1: Fuel Meter. Indicates the rate of remaining fuel in the tank. When the pointer comes over the red zone, you have about 4lt fuel in the tank, fill fuel as soon as possible.
- S2: Engine rpm gauge. Indicates one percent of the engine speed in r/min (rpm).
- S3: Digital gauge.

Upper line indicates engine operating hours. Blinking hour glass symbol indicates the engine is running, this symbol disappears when the engine is not operating. Digits before the point indicates the engine operating time in hours. First digit after the point indicates the one-tenth of the one-hour operation (1/10 hours = & minutes) of the engine. Independently of the engine speed, every 1 hour of engine operation, the counter shows 1 units of increase.

The bottom line indicates power take off speed in rpm. The tractor has two power take off speeds as standard. When 540 rpm is selected, this value is shown with a turtle symbol and when 750 rpm is selected the value is indicated with a rabbit symbol.

Power take off speeds for engine speeds:

540 Standard = 2540 engine rpm

540 Economy = 1875 engine rpm

750 Economy = 2600 engine rpm

S4: Water temperature gauge.

The water temperature pointer will move when the engine heats up. Normal operating range of the engine is 75°C-95°C. These two values are indicated with a point on the gauge. Under normal operating conditions, pointer must be placed between this range.

The red zone indicates high operating temperature. It starts at 115°C and ends at 125°C. If the pointer enters this zone, remove the engine load immediately and run at idle speed, then wait for 3-5 minutes for the pointer to return to the normal operating range; if the pointer stays in the red zone, shut the engine off and after the engine is cooled down, check radiator fluid level and engine oil level, and control the hoses for leakage, if the levels are not satisfying, replenish appropriately. Consult your dealer if necessary.

- L1: Battery not charging warning light. It lights in red. When the engine starts to run, the warning light should normally go off.
- L2: Air cleaner warning light. It lights in red. It lights up when the air cleaner is jammed.
- L3: Power take off warning light. It lights in red. It lights up when the PTO lever is applied.
- L4: Engine oil pressure warning light. It lights in red. When the engine starts to run, the warning light should normally go off.
- L5: Transmission oil filter jammed warning light. It lights in red. It lights up when the transmission oil filter is jammed.
- L6: Parking brake warning light. It lights in red. It lights up when the parking brake is applied.
- L7: Glow warning light. It lights in orange. It lights up when the ignition key is turned ON, it remains on for a certain period of time to facilitate the engine operation and goes off.
- L8: 540 PTO warning light. It lights in orange. It lights up when the PTO is applied, if the PTO speed lever is at 540.
- L9: 750 PTO warning light. It lights in green. It lights up when the PTO is applied, if the PTO speed lever is at 750.
- L10: High beam warning light. It lights in blue. It lights up when the high beams are on or when the headlights are flashed.
- L11: Low beam warning light. It lights in green. It lights up when the low beams are on.
- L12: Fuel warning light. It lights in yellow. It lights up when the fuel level in the tank is under the limit.
- L18: 4,wheel drive warning light. It lights in orange. It lights up when this function is engaged using 4-wheel drive lever.
- L19: Water temperature warning light. It lights in red. It lights up when the engine temperature rises above the limit. If the lamp light up, remove the engine load immediately and run at idle speed, then wait for 3-5 minutes for the lamp to go off; if the lamp does not go off, shut the engine off and after the engine is cooled down,

check radiator fluid level and engine oil level, and control the hoses for leakage, if the levels are not satisfying, replenish appropriately. Consult your dealer if necessary.

- L20: Left-hand-side turn signal warning light. It lights in green. It flashes when the left signal is on.
- L21: Right-hand-side turn signal warning light. It lights in green. It flashes when the right signal is on.

# **USAGE OF FRONT DASHBOARD CONTROLS**

# 1. Ignition Controls



OFF position: Power supply to the tractor is off and the engine is not operating. In order to stop the engine while running and shut down the controls, turn the ignition key to the counterclockwise to this position (backmost). When the ignition key is at this position, or even there is no key, the hazard warning light and horn continue to operate.



Ignition position: Power supply to the tractor is on and certain circuits are supplied with electricity. If there are any controls engaged, associated warning lights illuminate on the dashboard. Normally, battery charging and engine oil pressure warning lights should illuminate on a continuous basis. The tractor has a auto glow system, when the ignition key is turned clockwise from off to this position, glow system is engaged and runs for a certain period of time to facilitates the initial operation of the engine. As long as the glow system runs, the warning light will continue to illuminate on the dashboard. The operating time of the glow system varies according to the temperature of the environment.

40-45 seconds @ -20°C

25-30 seconds @ 0°C

1±0,2 second @+45°C

After the warning light goes off, the engine starts to run, meanwhile the glow system continue to run for another 20 seconds to facilitate the operation of the engine. If the engine is operated before the warning light goes off (not recommended), the light goes off and relay continues to glow the plugs for 20 seconds.



Start position: When the ignition key is turned clockwise after the glow plug warning light goes off from ignition to this position, starter motor starts to run and the engine starts. As long as the key is placed at this position, starter motor continues to run.

When the key is released, it turns back to ignition position and starter motor stops. If the engine starts when returned to the ignition position, normally the battery warning light and engine oil warning light go off, tachometer moves to indicate engine rpm, meter starts counting and hour glass starts to flash on the digital gauge.

# 2. Rotating Beacon Lamp



Press the upper side of the button to turn on the rotating beacon lamp. The lamp continues to illuminate as long as the button is pressed. In order to turn off the lamp, press the bottom of the button. It is obligatory to turn on the lamp

# 3. Working Light



When the button is pressed, working lamp turns on and continues to illuminate as long as the button is pressed. In order to turn off the lamp, press the bottom

# 5. Hazard Warning Light



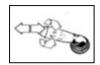
When the button is pressed, hazard warning light turns on and continues to illuminate as long as the button is pressed. In order to turn off the lamp, press the bottom of the button.

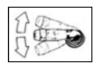
# 6. Differential Lock Control



When the button is pressed, differential lock is applied and it continues to operate when the button is pressed. In order to turn off the lamp, press the bottom of the button. When it is engaged, an audible alarm will sound to warn the operator. For detailed information, see operation section.

# 7. Illumination, Flasher and Horn Control







0

OFF position: Illumination is off.



First position: Parking warning lights and dashboard background illumination is on.



Second position: The low beam headlights are on.



To flash the headlights, pull the lever to yourself and release.



To turn on the high beams, place the lever to the second position and push it



For turning right, push the lever forward.



Press the horn symbol on the lever to operate the horn.

# **USAGE OF TRACTOR CONTROLS**

# 8. Operator's Seat



Figure 5



Figure 6

Tractor is equipped with a seat that provides maximum operator comfort.

Vibration levels of the seat measured for lightweight and heavy operators as per 78/764/EC are 1.24m/s<sup>2</sup> and 1.16m/s<sup>2</sup>, respectively.

In order to reduce the vibration levels:

- i. Try to keep the vertical position adjustment of the seat at medium level.
- ii. Adjust the spring tension according to the weight of the operator by twisting the screw at the back side.

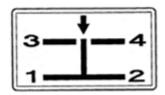
In order to adjust your seat forward or backwards, pull up the lever (1) as seen in "Figure 5", the seat will be secured when the lever is released.

In order to adjust your seat up or down, loosen the screw (2) at both sides as seen in "Figure 5", after you place the seat to the desired position, secure it by tightening the screws at both sides by hand ensuring they are fully secured.

In order the adjust the suspension of the seat, loosen and tighten the screw (2) by hand as seen in "Figure 6". It can be hardened or softened by turning clockwise or counterclockwise, respectively. Consider the weight of the operator when adjusting the suspension unit.

# 9. Shift Lever

There are 4 main shift positions. Shifts are synchromesh-type. Depress clutch pedal all the way to shift gears, release the pedal slowly after making the proper shift adjustment.



# 10. Hand Throttle

Boosts engine rpm and enables the tractor to increase its speed. It is operated by hand. The rabbit symbol indicates high speed and snail symbol indicates low speed. Hand throttle enables fixed adjustments, after the desired throttle setup is made, this adjustment continues to apply after you release the lever.

# 11. Gas Pedal

Boosts engine rpm and enables the tractor to increase its speed. It is operated by foot. The speed increases as depressing continues and it turns to its original position after the pedal is released. It can be used with hand throttle simultaneously, if used when there is a fixed throttle setup, the speed may increase even more. When the pedal is released, throttle setup starts to apply again.

# 12. Speed Shift Lever

There 3 speed shifts. High (symbolized with a rabbit), Medium (symbolized with a human) and Low (symbolized with a snail). There are idle shifts between each consecutive speed shifts.



# 13. Brake Pedal Lock

Must be engaged to lock brake pedals together especially when driving on roads to ensure simultaneous use of the brakes.

To unlock the pedals, turn the pin halfway clockwise (A) as seen in "Figure 7" without depressing the pedals (on reverse position), pull it to the right and turn it counterclockwise (B) to fix it to the pin slot on the right pedal.

To lock the pedals, turn the pin halfway clockwise (A) as seen in "Figure 7" without depressing the pedals (on reverse position), pull it to the left to place the pin into slot and turn it counterclockwise (B) to fix it on the right pedal.



Figure 7

# 14. Right Brake Pedal

When depressed, it engages the right brake and brakes the right wheel. When released, automatically returns to its original position and braking effect also disappears. Normally, the play of the pedal should be 1-2 cm.

# 15. Left Brake Pedal

When depressed, it engages the left brake and the left wheel. When brakes released. automatically returns to its original position and braking effect also disappears. Normally, the play of the pedal should be 1-2 cm.

# 16. Clutch Pedal

When the pedal is in the upper position: The clutch is deactivated, and there is a power transmission from the engine to the transmission.

When the pedal is in the lower position: The clutch is activated, and there is no power transmission from the engine to the transmission.

If the engine stalls, do not use the tractor by half engaging the clutch, instead shift to a lower speed. Normally, the play of the clutch pedal should be 2-3 cm.



# A CAUTION

When operating the tractor, do not put your feet on the pedals, rest them on the footboard.

# 17. Hand Operated Clutch Lever

When operating the PTO, you will need to use the hand clutch.

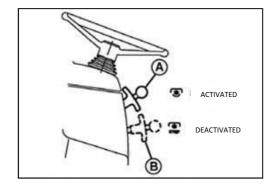


Figure 8

When the lever is in the upper position: The clutch is deactivated, there is a power transmission from the engine to the PTO, and the PTO moves.

When the lever is in the lower position: The clutch is activated, there is no power transmission from the engine to the PTO, and the PTO does not move. In order to stop the PTO and disengage the clutch, push down the (A) knob shown in "Figure 8" until it locks; when it locks you will hear a sound.

In order to move the PTO and engage the clutch, pull the handle (B) shown in "Figure 8" towards yourself, and release the knob (A) until it reaches the highest position so that it makes the lever travel upwards.

Normally, the play of the hand clutch control lever should be 1-2 cm.

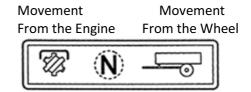
# 18. Power Take Off Lever

It has 3 positions:

Ahead: The position of movement from the engine.

Middle: Neutral position.

Behind: The position of movement from the wheel.



In order to move the lever, the hand clutch should have been disengaged and the foot clutch should have been fully depressed.

# Movement from the Engine

The PTO speed is chosen by the PTO speed lever.

# Movement from the Wheel

This option is used when the equipment need to be operated in sync with the advancement speed of the tractor.

To use it, first disengage the hand clutch and fully depress the foot clutch. Set the PTO speed lever to the 750 speed option, take the PTO to the "movement from the wheel" position and release the foot clutch slowly.

# **A** CAUTION

Remember that when the wheel is in movement position, while the tractor moves backwards the PTO will also rotate in opposite direction. This situation may constitute a problem when using certain equipment. When required, disengage and deactivate the PTO by using the PTO lever.

1 Wheel Rotation = 11.076 PTO Rotations

# 19. Shuttle Lever

The shuttle lever enables selecting the direction, in which the tractor will travel. If pushed forward it travels frontward, and if pulled backwards, it travels rearward.

When using the shuttle lever, depress the foot clutch completely even if synchromesh exists in shuttle control, and allow the tractor to completely stop; upon putting the lever in required position, slowly release the foot clutch.



# 20. Position Control Lever

It serves to command the position control of the equipment installed in the 3-point linkage system For further information, refer to the usage of the Control Valve of the Hydraulic.

# 21. Depth Control Lever

It serves to command the precision control of the equipment installed in the 3-point linkage system For further information, refer to the usage of the Control Valve of the Hydraulic.

# 22. Parking Brake

When the lever shown in "Figure 9" is pulled up, it squeezes the brakes of the tractor, thus ensuring stopping without slippage and parking. To deactivate the parking brake, press button (2) in "Figure 9" and lower the lever (1) slowly

downwards. Normally, there is one click play on the parking brake.



# A CAUTION

When activating and deactivating the parking brake, also depress the service brakes to prevent the tractor from slipping and for your safety; upon activating the parking brake, release the service brakes slowly.



# CAUTION

The parking brake is a mechanical braking system and independent of the service brakes, thus it can also be used for emergency braking when required. Before braking in emergency situations, if possible, slow down the tractor by using the motor brake and by downshifting and apply the parking brake slowly and gradually.



Figure 9

# 23. Power Take Off Speed Lever

The power take off speed is selected by this control. When lever (1) shown in "Figure 10" is above and below, 540 rpm and 750 rpm (540 Economy) options are enabled, respectively.

The 750 rpm option may be preferred when used with equipment not requiring as much power as the 540 rpm option does. In 750 rpm option, when the engine is at 1875 rpm, 540 rpm power take off speed is obtained, this in turn offers the possibility to operate with low fuel consumption, noise and vibration.

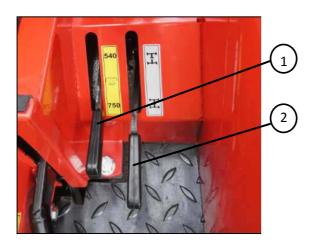


Figure 10

# 24. 4-Wheel Drive Lever

When lever (2) shown in "Figure 10" is in lower position, the four wheel drive function activates, and when it is taken to the upper position, the function deactivates. When the four wheel drive is active, roadholding and braking ability improves on muddy and slippery surfaces and fields. When activating or deactivating the four wheel drive, be sure the tractor is at standstill.



# **WARNING**

Use the four wheel drive function where required only. Do not use it on hard soil, asphalt, cement surface and highways; this may cause wheels to wear.

# 25. External Power Outlet Lever

There are external power outlets on the back of the tractor you can make use of for using in equipment hydraulics. These are parts of the hydraulic circuit of the tractor, and they use the same oil as in the gearbox of the tractor.

The control levers are situated on the left side, beside the seat. These power outlets can be connected to the equipment with standard 1/2" quick fit coupling connection. Required male connecting terminals are supplied in the tool box together with the tractor.

Together with the tractor, there is 1 hydraulic distribution valve with 2 dual-effect independent circuits, which can be converted to single-effect...

It can be used to feed single-effect and dual-effect cylinders.

Control arms have 3 positions:

Above: Hydraulic is given from outlet A.

Middle: Circuit is closed.

Below: Hydraulic is given from outlet B.

In order to move the control levers, first pull the safety lock and the lever (3) shown in "Figure 11" forward and put the control levers (1-2) shown in "Figure 11" in the positions you desire. The pressure oil is driven from "A" or "B" outlets according to the position taken by the control lever.



# A CAUTION

When using an implement, which requires a mass amount of oil, the oil level on the transmission case of the tractor may drop below the minimum baseline. If this happens, components of the tractor may be damaged due to insufficient lubricating. To prevent this from happening, be watchful of oil level when using hydraulic outlets; and if necessary, replenish oil using the oil recommended for transmission.

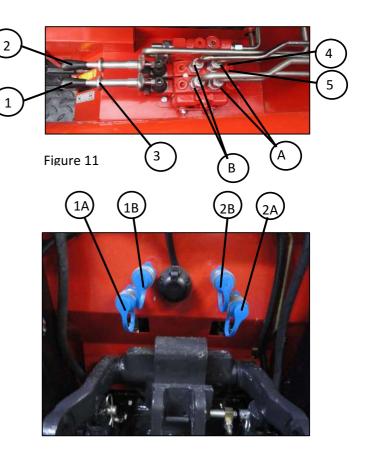


Figure 12

Lever (1) shown in "Figure 11", directs the pressure fluid from the outlets shown in "Figure 12" to outlets (1A) and (1B) respectively according to "A" or "B" position, to which it is taken.

Lever (2) shown in "Figure 11", directs the pressure fluid from the outlets shown in "Figure 12" to outlets (2A) and (2B) respectively according to "A" or "B" position, to which it is taken.

As defaults, the distribution valves are set to dualeffect.

In order to convert from dual-effect to singleeffect, loosen the nut (5) shown in "Figure 11" in requested section, and loosen stay bolt (4), then retighten nut (5).

In order to convert from single-effect to dualeffect, loosen bolt (5) shown in "Figure 11" in requested section, and tighten stay bolt (4), then retighten nut (5).

When using single-effect, the pressurized fluid is directed from (outlets 1A) and (1B) shown in "Figure 12".

# **TRANSMISSION**

As a standard, the transmission of the tractor has 12x12 speed options. These speeds are achieved by 4 main shift, 3 speed shifts and the forwardbackward shuttle shift lever.

In addition, there are a power take off outlet and external power outlets for the use of equipment.

For further information on the use, refer to the "Usage of the Tractor Controls" section.

By taking into consideration the speed table given in this manual and also found on the tractor, select the proper speed according to the work you will carry out, and use it at the gear and rpm you determined.



Figure 13

Maximum oscillation angle of the front axle is 12°. This is factory setting. It is a setting determined by considering the axle, the axle carrier, the peripherals, and dynamic movements; do not alter this setting.

The permitted turning angle of the front axle is 40° in narrow axles, and 45° in wide axles for the side close to the turning center (inside); and 35° in narrow axles and 40° in wide axles for the distant side (outside). You can make adjustment in a way to decrease this angle, but it is not recommended to increase it.

There is possibility to adjust the turning amount of the wheels on the front axle. Length of the stopper is adjusted by tightening and loosening bolt (1) shown in "Figure 14", and after making the adjustment, nut (2) is tightened to fix and lock. It is recommended the distance from above the stopper to the casting (distance A) to be minimum 35mm in narrow axles, and minimum 30mm in wide axles. This setting is the same for both sides (right and left).



# CAUTION

Decreasing this value increases the turning angle and decreases the lateral stability of the tractor, which can cause the tractor to tip over on bends or inclined lands. Hence, do not make an adjustment lower than recommended value.



Figure 14

NOTE: There is 1 pc of the (F) figure shown in "Figure "4" on each axle housing in narrow axles while there are 2 pcs on each axle housing in wide axles. By this means, you can distinguish the axle type.

Toe-in adjustment on the front axle is carried out at the factory and it is set to max 6.5°. This angle is important for steerability at high speeds, easier control of the tractor on bends, and simple turning. You are not recommended to alter this value.

To make this adjustment, after centering the steering wheel and putting in the tires as a straight position as possible, lock nut (2) shown in "Figure "5" is loosened and rods (1) are adjusted by tightening and loosening them from the key opening. Normally, front side of the front tires should be turned in with reference to the rear side, and the angle between these tires should not exceed 6.5°. Although the difference between the track on the front side and the track on the rear side of the tires differs according to the tire type, a value of 75-90mm would be convenient.



Figure 15

#### **HYDRAULIC LIFT**

The hydraulic lift is a system, which is used to lift and lower the equipment connected to the threepoint lifting system. It carries out these controls with tubes, hoses, two lifting cylinders, the hydraulic gear pump and the control valve.

It carries out following functions with levers (20-21)shown in "Figure 2":

- Position Control
- Depth Control
- Combination Control
- Flotation Control

These functions are selected depending on the work to be done, and soil conditions.

### **Position Control:**

Control is carried out by the lever (21) shown in "Figure 2". Pull the lever backwards to lift up the equipment. Height of the equipment is directly proportional to the position of the lever. The

application travel is proportional to the position control lever 18 of the lift.

#### Depth Control:

Control is carried out by lever (20) shown in "Figure 2". Immersion depth of the equipment is proportional to the resistance faced when driving. The control valve changes the immersion depth of the equipment in a way to keep constant the resistance with predetermined value, and allows constant power consumption. After lifting the equipment while driving, do not forget to bring it to the same depth setting when you lower it again.

#### Combined Control:

You are recommended to use the combination control when carrying out works having a risk of passing to subsoiling in regions, whose grading was not carried out, especially with irregular surface or soft soil.

Lower the equipment down the ground and adjust the depth as described above. Lower the position control lever slowly; in this way you will also make position control.

In this way, a working possibility is acquired with a constant power by preventing too deep ploughing. Flotation Control:

Bring both (20) and (21) levers shown in "Figure 2" to the lowest position.

Use the lever (1) shown in "Figure 16" to set its precision.

If precision is increased during flotation control, bounce of the equipment increases, and if precision is decreased, jounce of the equipment decreases.

Turn it clockwise (A) to increase the precision.

Turn it counterclockwise (B) to decrease the precision.



Figure 16

#### **3 POINT LINKAGE SYSTEM**

The tractor is equipped with a 3 Point (3P) Linkage System, Category 2 (CAT-II). To make sure that the tractor runs smoothly, check if the equipment is suitable for three point linkage and hydraulic lift.

3P linkage system consists of the parts shown in "Figure 17".

#### 1. Center Arm:

Links the top of the equipment frame to the top point and conveys the sensitivity data from the equipment to the hydraulic valve.

- The center arm has two stabilizing holes for tractor linkage.
- ii. The center arm pipe is movable and can be turned clockwise and counterclockwise to adjust the equipment angle according to the ground; it is fixed with the lock nut at the end of the pipe.

#### 2. Linkage Arms:

There are two linkage arms with one on each side and they link the lifting arms to drawbars. They are used to adjust the position of the equipment according to the ground. Turn them clockwise or counterclockwise to adjust their position according to the level of drawbars. Once the adjustment is completed, you can fix them with the lock nut at the end of the pipe.

#### 3. Stabilizer Chains

These chains can be adjusted to limit the side-toside movement of lower drawbars of the three point linkage system.

For plough and similar equipment, adjust the length of the chains to give a 5 to 6 cm free play. While carrying equipment in 3 point linkage system, restrict the lateral movements completely. To increase or decrease the lateral movements turn it clockwise or counterclockwise, when you make the desired adjustments tighten the lock nut.

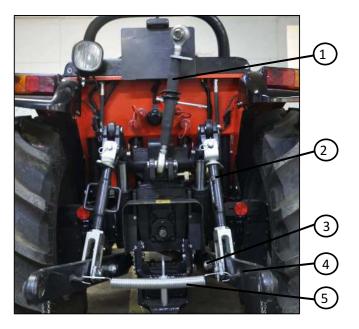


Figure 17

#### 4. Drawbars

It is used for linkage to the lower points of implement frame and it is fixed. The arms that draw the equipment are these two drawbars.



# **A** CAUTION

The drawbars have a play that allows the lateral movement of it and to balance this, it is supplied with a spring on it, part (5) shown in "Figure 17". With the implement disengaged this spring should be installed, thereby, it prevents drawbars to hit the tires particularly when the tractor is adjusted to small track width.



#### CAUTION

While driving on the road ensure that the stabilizer chain slack is took up and the springs have been placed on the arms if the implement is not engaged.



# **A** CAUTION

After mounting and dismounting the equipment, be sure that you safely hitch the equipment by using safety pins.



# CAUTION

Pay special attention while mounting implement to the tractor.

#### **IMPLEMENT MOUNTING**

- 1. Move the three point linkage system to the lowest position.
- 2. Slacken the stabilizer chain with a certain amount, so you can mount the drawbars to the linkage point of the equipment easily.
- 3. Approach the tractor to the implement by driving it backward slowly.
- 4. Raise the arms until the axis of the drawbar pin aligns with the axes at the implement linkage point.
- 5. Attach the drawbars to the implement linkage points and secure with safety pins.
- 6. Adjust the stabilizer chains.
- 7. Link the middle arm and adjust its length by proper angle.

#### **IMPLEMENT REMOVAL**

- 1. Lower the implement.
- 2. Slacken the stabilizer chains.
- 3. Remove the safety pins, pull out the drawbars and install the safety pins to their seats on the drawbar.



# A CAUTION

Always stop the engine while adjusting the drawbar and mounting the implement.



# CAUTION

While carrying implement always keep the position control lever at the uppermost position and lock the hydraulic valve.



# A CAUTION

While mounting and dismounting the implement always use the position control lever.



#### CAUTION

Be sure to lower the implement before dismounting it.



### CAUTION

Never work around the implement raised by the Secure the implement to hydraulic system. prevent it from falling and stop the engine.

#### MIDDLE ARM CONNECTION

There are two holes at the tractor side of the middle arm for linkage.

The implement to be used should be determined according to the desired work and the force generated.

- The hole at the lower position provides further sensitivity so it should be preferred for implement that is light and generates small force.
- The hole at the upper position provides less sensitivity so it should be preferred for implement that is heavy and generates large force.

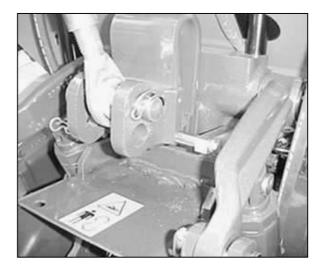


Figure 18

#### **HITCH CONNECTIONS**

#### **Front Hitch**

The front hitch is supplied with the tractor. It is possible to link the front hitch, the part (1) shown in "Figure 19", to the weights on the chassis as well as it is possible to link it to the chassis directly. To link the front hitch to the weights, the front hitch (1) shown in "Figure 19" is fixed by installing to the part (2) "Figure 19" with the bolts (1) "Figure 21". To link the front hitch to the chassis, the front hitch (1) shown in "Figure 20" is fixed by installing to the part (2) "Figure 19" with the bolts (1) "Figure 21". While attaching to the chassis, the part (2) shown in "Figure 19" is placed inside the bumper.

All the required parts have been supplied with the For mounting you can use the toolkit supplied with the tractor.



# **A** CAUTION

While fixing the implement linkage always use the pin supplied with the tractor, do not use another parts even if they are similar.



# CAUTION

After combining the implement, lock the pin (2) shown in "Figure 21" with the safety pin (3) shown in "Figure 21" securely.



# **A** CAUTION

While using the rear hitch take care the axle loads. Use the front hitch to push the implements, do not use it for drawing. If you need to draw, use the rear hitch.

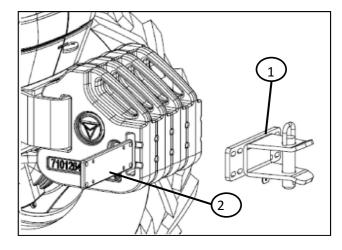


Figure 19

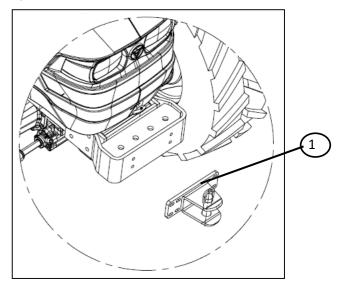
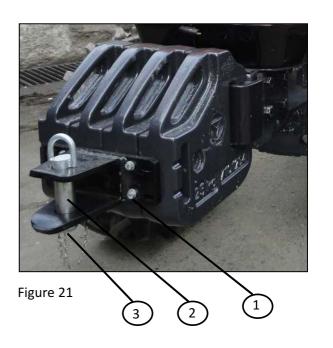


Figure 20



#### **Rear Hitch**

The tractor is equipped with a ISO certified rear hitch that is compatible to link implement, one and two axle trailer.

The ground clearance of the hitch is non-adjustable and fixed.

The rear hitch (1) shown in "Figure 22" is connected to the lifting brackets with 4 pcs Ø18 pins (4) shown in "Figure 22" and the pins are fixed with the hairpin (3) shown in "Figure 22". The hitch support bracket is supported with the part (2) shown in "Figure 23". The hitch support bracket is fixed to the rear hitch via the 2 x M12x30 bolts (2) shown in "Figure 23". The hitch support bracket is attached to the chassis via the 4 x M12x40 bolts (3) shown in "Figure 23". There is a identification plate (5) shown in "Figure 22", if further guidance is required.



# **A** CAUTION

All the required parts have been supplied with the tractor and they have been mounted on the tractor. Do not try to remove or replace with other similar parts. To obtain the offered performance replace the broken parts with the genuine parts at the authorized service stations. To mount the parts, it is necessary to tighten them with the special torque. These operations should be done at the service stations as it is not possible for the operators to know these descriptions and they should not try to undertake such procedures themselves.



#### CAUTION

Always use the supplied pin while mounting the implement to the rear hitch. After combining the implement, lock the joint pin (2) shown in "Figure 23" with the safety pin securely.



#### CAUTION

While using the rear hitch take care the axle loads.

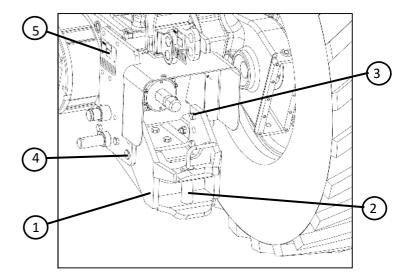


Figure 22

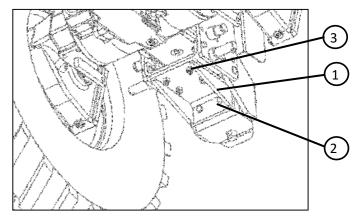


Figure 23

#### **POWER TAKE-OFF HOUSING**

There are parts on and around of the PTO outlet for your safety.

- 1. For extra safety, in every operation be sure to install the PTO guard (1) shown in "Figure 24"
- For your safety, at the portion where the PTO shaft is installed there is a safety zone (2) shown in "Figure 24" made by metal sheet. Never remove or deform this part.
- 3. Be sure that the PTO shaft which is linked between the tractor and the implement has a housing, do not use it without housing.
- 4. For tractor-trailer linkage always use the rear hitch.
- 5. While the tractor is running or moving, do not walk in between the tractor and trailer, and let nobody does.
- 6. While towing a trailer, carry only loads; do not use the trailer to carry persons or other living things.

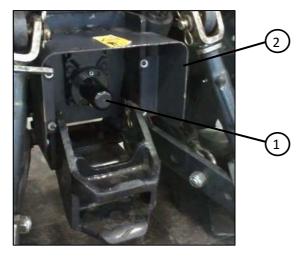


Figure 24

#### **DIFFERENTIAL LOCK**

This function links the right and left wheels in the transmission and rotates them at the same speed to prevent either wheel from slipping, or to increase traction force.

# **Engaging the Differential Lock**

Before the tractor slips and the speed is lowered, press the differential lock button on the instrument panel and engage the differential lock. If the differential lock does not engage at the first attempt, repeat the operation by deactivating with the same button. If it still does not engage, lower the engine speed and after disengaging the clutch, repeat the whole operation as described above. If either of the left or right wheels has already begun slipping, turn the throttle lever to the idle running or disengage the clutch, then activate the differential lock. You will hear an audible alarm while the differential lock engaged; when the differential lock disengaged, audible alarm will stop automatically.

#### NOTE:

By pressing the differential lock button you can release the lock, however, if the lock is not released press either side of the brake pedal, not both sides, instantly.

#### **How to Release the Differential Lock**

With the differential lock button the locking force is immediately removed, after that with the differential lock spring force it releases automatically. However, it must be remembered that the lock may not be released under special conditions. In this case, the right or left brake pedal should be instantly and alternatively depressed, then, the differential lock will be set free. If the same occurs while plowing, the brake pedal of the land wheel side should be applied. The lock will be let out. When both right and left brakes are linked for towing a trailer, operation of the steering handle to right and left allow the lock to be released. When the tractor is stopped with the differential lock applied, reverse running with a jerk can release the lock.



# **A** CAUTION

Avoid using the differential lock when operating the tractor at high speed or running on a road.

# **HYDRAULIC CIRCUIT**

The hydraulic circuit diagram of the working principle indication of the steering wheel, 3 point linkage system and external power outputs and the description of the elements are provided below.

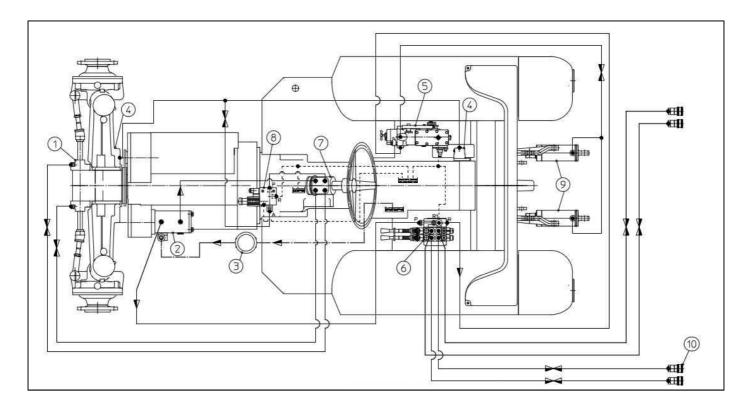


Figure 25

Descriptions of the parts in the circuit:

- 1. Steering Cylinder.
- 2. Pump.
- 3. Hydraulic Filter.
- 4. Differential Lock Cylinder.
- 5. Hydraulic Control Valve.
- 6. Hydraulic Distribution Valve.
- 7. Orbitrol.
- 8. PMV Valve.
- 9. Hydraulic Lift Cylinders.
- 10. External Outlet Quick-Fit Couplings.

# **ELECTRICAL CIRCUIT**

The electric circuit diagram and the elements of the tractor are provided below.

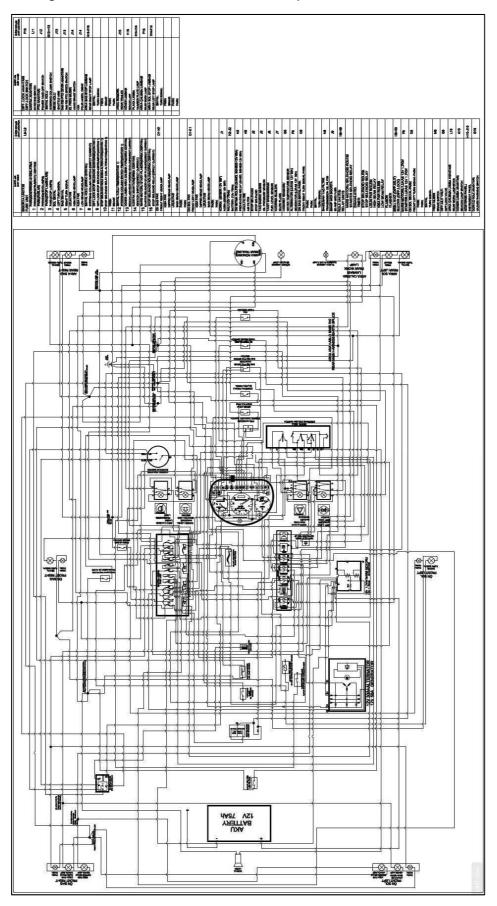


Figure 26

# **TIRES AND RIMS**

You can find the tires on the tractor and the rims, tire pressures, axle loads, tracks and mounting types suitable to these tires in the following table.

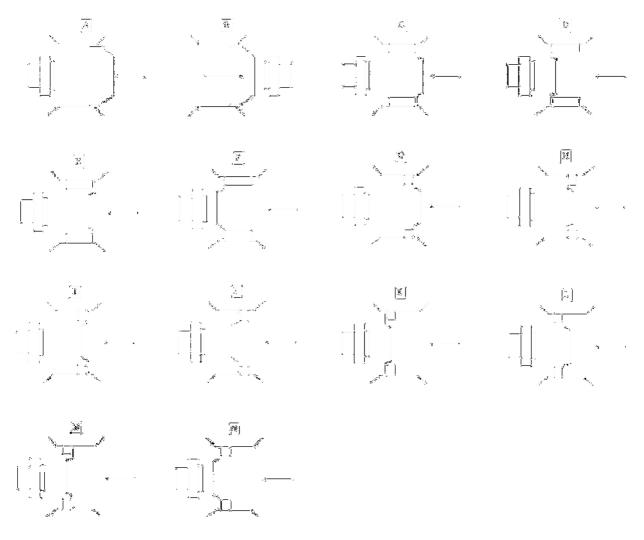
| _           |            |           |          |           |   |      |      |      | TRACK W | /IDTHS |     |      |     |      |      |      | 1           |
|-------------|------------|-----------|----------|-----------|---|------|------|------|---------|--------|-----|------|-----|------|------|------|-------------|
|             | Tire Sizes | Rim Sizes | Α        | В         | С | D    | E    | F    | G       | Н      | - 1 | J    | K   | L    | М    | N    | Cross Match |
|             | 7.00-12    | 5.00J-12  | 860/1020 | 1080/1240 | - | -    | -    | -    | -       | -      | -   | -    | -   | -    | -    | -    | (1)(6)      |
|             | 6.50/80-15 | 5.00J-15  | -        | -         | - | 1100 | 1150 | 1260 | -       | -      | -   | -    | -   | -    | -    | -    | (5)         |
|             | 6.00-16    | 4.00E-16  | -        | -         | - | 1080 | 1180 | 1240 | -       | -      | -   | -    | -   | -    | -    | -    | (6) (7)     |
| Front Tires | 7.50-16    | 5.50F-16  | -        | -         | - | 1100 | 1150 | 1260 |         | -      | -   | -    |     | -    | -    | -    | (8)         |
|             | 200/70 R16 | W7-16     | -        | -         | - | -    | -    | -    |         | -      | -   | 1035 |     | 1005 | 1060 | 1165 | (5) (6)     |
|             | 240/70 R16 | W8-16     | -        | -         | - | -    | -    | -    | -       | -      | -   | 1195 |     | 1165 | 1220 | 1325 | (2)(3)      |
|             | 280/70 R16 | W8-16     | -        | -         | - | -    | -    | -    | -       | -      | -   | 1195 | -   | 1165 | 1220 | 1325 | (4)         |
|             | 260/80 R20 | W9-20     | -        | -         | - | -    | -    | -    | -       | 875    | 915 | 1035 | 916 | 1030 | 1075 | 1195 | (5)         |
|             | 280/85 R20 | W9-20     | -        | -         | - | -    | -    | -    | -       | -      | 915 | 1035 | 916 | 1030 | 1075 | 1195 | (6)         |
|             | 9.5-24     | W8-24     | -        | -         | - | -    | -    |      |         | -      | -   | 1095 | -   | -    | 1200 | 1315 | (7)         |
| Rear Tires  | 12.4-24    | W10-24    | -        | -         | - | -    | -    | -    | -       | -      | -   | 1095 | -   | -    | 1200 | 1315 | (8)         |
| Real Tiles  | 320/70 R20 | W10-20    | -        | -         | - | -    | -    |      | -       | -      | -   | 1020 |     | 1045 | 1090 | 1205 | (1)         |
|             | 360/70 R20 | W10-20    | -        |           | - |      |      |      |         | -      | -   | 1020 |     | 1045 | 1090 | 1205 | (2)         |
|             | 320/70 R24 | W10-24    | -        | -         | - | -    | -    | -    | -       | -      | -   | 1095 | -   | -    | 1200 | 1315 | (3)         |
|             | 360/70 R24 | W10-24    | -        | -         | - | -    | -    | -    |         | -      | -   | 1095 | -   | -    | 1200 | 1315 | (4)         |

Table 1

The bold measurements shown in the Table 1 shows the factory defaults.

There may be variations in these values up to ±20mm depending on the production.

# **RIM ASSEMBLY DETAILS**



|             |            |           | TIRE PRE       | SSURES          |                    |
|-------------|------------|-----------|----------------|-----------------|--------------------|
|             | Tire Sizes | Rim Sizes | ROAD (bar-psi) | FIELD (bar-psi) | MAX AXLE LOAD (kg) |
|             | 7.00-12    | 5.00J-12  | 2.4 - 35       | 1.8 - 26        | 974                |
|             | 6.50/80-15 | 5.00J-15  | 2.9 - 42       | 1.8 - 26        | 1000               |
|             | 6.00-16    | 4.00E-16  | 3.00 - 44      | 1.8 - 26        | 1000               |
| Front Tires | 7.50-16    | 5.50F-16  | 4.2 - 61       | 1.8 - 26        | 1000               |
|             | 200/70 R16 | W7-16     | 2.4 - 35       | 1.8 - 26        | 1000               |
|             | 240/70 R16 | W8-16     | 2.4 - 35       | 1.8 - 26        | 1000               |
|             | 280/70 R16 | W8-16     | 2.4 - 35       | 1.8 - 26        | 1000               |
|             | 260/80 R20 | W9-20     | 1.6 - 24       | 1.2 - 18        | 1750               |
|             | 280/85 R20 | W9-20     | 1.6 - 24       | 1.2 - 18        | 1750               |
|             | 9.5-24     | W8-24     | 1.7 - 25       | 1.2 - 18        | 1750               |
| Rear Tires  | 12.4-24    | W10-24    | 2.1 - 30       | 1.2 - 18        | 1750               |
| Real Tiles  | 320/70 R20 | W10-20    | 1.6 - 24       | 1.2 - 18        | 1750               |
|             | 360/70 R20 | W10-20    | 1.6 - 24       | 1.2 - 18        | 1750               |
|             | 320/70 R24 | W10-24    | 1.6 - 24       | 1.2 - 18        | 1750               |
|             | 360/70 R24 | W10-24    | 1.6 - 24       | 1.2 - 18        | 1750               |

Table 2

The axle loads specified in Table 2 are the total axle loads for the axle which the tire is mounted on and the tire pressure for driving on the road is taken as reference. The carrying capacities are lower with lower tire pressures.



#### WARNING

Tire pressure should be checked frequently. Either too high or too low pressure results in deterioration of the tire. To keep the tires in a good condition, check the tire pressures daily and adjust them according to the work to be done.



#### **WARNING**

If the tire strips fill with mud lower the pressure and drive in a gear one stage lower than you would normally use.



#### **WARNING**

If you find any damage on the tire make it repaired as soon as possible, if it is not able to be repaired, replace with new one.



#### WARNING

It is not recommended to use tires that are worn more than 50%.



# **WARNING**

Avoid widening front tread of the 2- and 4-wheel drive tractor by switching the right and left front tires as this may cause serious troubles on the steering linkage.



# **WARNING**

Check at frequent intervals to make sure that the rear and front wheel are tightened securely to specified torque and that the axle housing and gear case are secured each other to specified torque.

#### **TIRE MOUNTING**

Make sure that rear tires are mounted so that the lugs on the tire form the staggered V's in series as viewed from the front of the tractor.



# **A** CAUTION

The tightening torque of the front and rear wheel nuts are 100-120Nm. As they have been tightened with torque while removing or installing the wheel nuts, keep the tires on ground. Before tightening with torque and after the torque is removed raise the tires from the ground.



# **A** CAUTION

If it is needed to use the jack while changing the tractor tires, it should be raised at the front under the front bumper, at the rear under the rear hitch.



# CAUTION

Before jacking up, place the tractor on a level surface, apply the parking brake, put the tractor in gear and be sure there is nobody around the tractor and raise the tractor only as much as necessary.



# A CAUTION

Never raise the tractor both points at the same time. Always be sure that the tractor is touching the ground at least on three points.

#### **WEIGHTS**

Providing road handling and decreasing the slipping are important for the life of tire and fuel economy.

While working with the heavy implements on the 3 point linkage system, to counterbalance the tractor it is necessary to attach the front-end weights.

4 x 25kg weights can be attached to the front bumper. Each weights are attached with M16 bolt and nut and the weights are connected to each other with a M16 stud bolt.

These weights are supplied with the tractor as standard.



Figure 27

While working on heavy duty work to increase the tractor's traction capability it is possible to attach the weights to the rear wheels.



Figure 28

Each of the weights is 25 kg and only one weight can be attached to each tire. The weights are attached to the rim with four M16 bolts and nuts. These weights are supplied with the tractor as standard.

In addition to or alternative to the weights, also, the water in the tire operation could be performed.

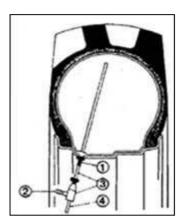


Figure 29

- 1. Valve
- 2. Water inlet
- 3. Water filling attachment
- 4. Air discharge

#### Filling the Tires with Water

- 1. Raise the tire to be filled with water using a jack as valve positioned at the upper side.
- 2. Remove the valve cap and release the tire pressure.
- 3. Install the attachment (3) shown in "Figure 29" to the valve (1) shown in "Figure 29" and fill the water from the water opening (2) shown in "Figure 29". Keep filling operation until water comes from the air discharge (4) shown in "Figure 29".
- 4. Pull out the attachment and pump air into the tire until the recommended pressure reached.

#### **Draining Water from the Tires**

- Raise the tire to be drained using a jack as valve positioned at the lower side, discharge the air form the tire.
- 2. Remove the valve cap and wait until all the water is drained.
- 3. Install the attachment (3) shown in "Figure 29" and pump air into the tire. Do not exceed the recommended air pressure while pumping air.
- 4. Wait until the residual water comes out.
- 5. Pull out the attachment and pump air into the tire until the recommended pressure is reached.

|             | Tire Sizes | Rim Sizes | Solution (Water+Antifreeze) (It) | CaCl₂ (kg) | Total Weight (kg) |
|-------------|------------|-----------|----------------------------------|------------|-------------------|
|             | 7.00-12    | 5.00J-12  | 26                               | 6          | 30                |
|             | 6.50/80-15 | 5.00J-15  | 25                               | 5          | 28                |
|             | 6.00-16    | 4.00E-16  | 30                               | 8          | 34                |
| Front Tires | 7.50-16    | 5.50F-16  | 32                               | 8          | 37                |
|             | 200/70 R16 | W7-16     | 33                               | 9          | 38                |
|             | 240/70 R16 | W8-16     | 30                               | 8          | 36                |
|             | 280/70 R16 | W8-16     | 41                               | 11         | 47                |
|             | 260/80 R20 | W9-20     | 50                               | 13         | 58                |
|             | 280/85 R20 | W9-20     | 56                               | 14         | 66                |
|             | 9.5-24     | W8-24     | 70                               | 19         | 81                |
| Rear Tires  | 12.4-24    | W10-24    | 80                               | 22         | 93                |
| Real IIIes  | 320/70 R20 | W10-20    | 70                               | 19         | 81                |
|             | 360/70 R20 | W10-20    | 93                               | 25         | 108               |
|             | 320/70 R24 | W10-24    | 85                               | 23         | 98                |
|             | 360/70 R24 | W10-24    | 100                              | 27         | 116               |

Table 3

In Table 3, additive and solution amount per tire is shown.



# **WARNING**

Use the weights based on the requirement of the work to be done. The weights increase the fuel consumption and tire wear, remove the weights if it is not necessary to use.



# **M** WARNING

While filling the tires with water, never use only water. Especially in cold areas, to prevent freezing use antifreeze additives at require levels. To avoid the corrosion could be found on the rims, it is also recommended to add additives.



# **A** CAUTION

While water in the tires, never operate the tractor above the 10 km/h speed.



# **A** CAUTION

While attaching weights to the tires and filling the tires with water be careful not to exceed the maximum axle loads.



# A DANGER

To inflate the tires never use inflammable or explosive gases.

# **SECTION 4 - OPERATION**

#### **BEFORE OPERATING THE TRACTOR**

- 1. Check the fuel level in fuel tank and replenish as necessary.
- 2. Check the levels of engine oil, transmission oil, and front drive differential.
- 3. Check the lubrication at every specified point on the chassis.
- 4. Check each bolt and nut for tightness.
- 5. Check the coolant level in radiator.
- 6. Check the fan belt tension for water pump, alternator-generator and cooling fan.
- 7. Check the air pressure in tires.
- 8. Check every indicator lamp on instrument panel for operation.

#### **STARTING THE ENGINE**

- 1. Always get on the tractor from the left side, since the right side is the emergency exit. When you get off, do not lean on the hand lever, mirror, mirror lever, pedals, etc., if you need to lean on something, you can either use the handle on the left fender or steering wheel.
- 2. Keep the parking brake applied.
- 3. Place the main shift lever, High-Low shift lever and PTO shift lever and sloop lever in NEUTRAL and depress clutch pedal all the way.
- 4. Set the throttle lever midway between its idling and high speed positions.
- 5. Turn the ignition key to "ON" position, and then see that oil pressure warnings as well as battery charge warning lamps go on.
- 6. As soon as the ignition key is on, the glow signal is on in the instrument cluster indicating heating and when the glow signal is off turn the ignition key to 'start' position to start the
- 7. Immediately after starting, release the ignition key. The key will return to "ON" position automatically.
- 8. Check the oil pressure and battery charge warning lamps to see they went off. If not, stop the engine immediately and inspect.

9. Disengage the clutch and perform warm up run at about 1,500 rpm for about 5 minutes.



# **A** CAUTION

Use of the starter should be limited for about 10 seconds per trial. If it is not successful, wait for about 10 seconds before another trial. Using the starter intermittently without waiting for certain period of-time, can cause the battery to run down.



# CAUTION

Do not turn the starter while engine is running. It can lead to the starter failure.



# **A** CAUTION

Be sure to perform the warm-up run regardless of the climate. Travelling before engine gets warm, shortens the engine life.

#### STARTING IN COLD WEATHER

- 1. The fuel injection pump of this engine adopts the mechanism to ensure easier engine start by sufficient injection of fuel when the throttle lever is fully pushed.
- 2. To start the engine especially in cold weather fully push the throttle lever, heat the glow plug enough and crank the engine.



# **A** CAUTION

After the engine has started confirm that the engine is running smoothly listening carefully to ascertain if nothing abnormal sounds, and inspect for oil and water leakage.



# **WARNING**

In case fuel runs out, be sure to bleed the fuel system after refilling the fuel tank, otherwise the engine may not be started (or even stops soon after started).



# A DANGER

Do not use starting aids such as Gasoline or Ether in the air intake. Explosion may result.

#### AFTER THE ENGINE IS STARTED

1. Check the oil pressure and battery charge warning lamps to see they went off. If the lamp "does not go off, immediately pull the throttle lever all the way backward and turn the starter key counter clockwise to shut down the engine, and locate the cause to correct.



# CAUTION

Particularly, by starting the engine while oil pressure is too low, serious trouble could occur because of insufficient lubrication.



#### CAUTION

Rotate steering wheel to see that front wheels turn to desired direction.

#### **DRIVING THE TRACTOR**

- 1. With the engine running, hold the tractor with the brakes if necessary.
- 2. By pulling hydraulic control lever backward, raise the implement.



# **M** WARNING

Raise or lower the implement with sufficient caution against any obstacle around.

- 3. Bring the engine speed to about 1,500 rpm (warm-up run).
- 4. Depress clutch pedal all the way.
- 5. Move each shift lever to desired position.
- 6. While travelling, interlock left and right brake pedals with locking plate so that they are applied simultaneously.



# **WARNING**

When you are working with the tractor or travelling on road, be careful that the engine speed is between the max. torque range (1500~1700 rpm), this range also ensures the most efficient and economic operation.



# **WARNING**

For travelling at high speed, interlocking the left and right brakes is particularly essential. Be sure not to travel at high speed with left and right

brakes being independent to each other (not being interlocked).

- 7. Do not attempt to stop tractor using brakes, which may cause failure of transmission internals or prematured wear of brake linings.
- 8. To avoid damaging brake or transmission system, be sure to release the parking brake before travelling.
- 9. While increasing the engine speed gradually, release the clutch pedal slowly.



# **WARNING**

Release the clutch gradually. Releasing it suddenly is hazardous causing the tractor to lunge.



#### **WARNING**

Before travelling backward, be sure to check for any obstacle behind the tractor.



# **WARNING**

For travelling on public road or working" at high speed, be sure to lock the left and right brake pedals with locking plate so that both brakes are applied simultaneously.



#### MARNING

During high speed operation or travelling on road, do not use differential lock. The 4-wheel drive shift lever and PTO shift lever should be placed in "2WD" and "NEUTRAL' positions respectively.



# MARNING

While travelling, remove your foot off the clutch or brake pedals.



# MARNING

Independent use of left or right brakes should only be allowed for low speed operation.



# **CAUTION**

For travelling with 3-point linkage attached, tie it with belt or the like for prevention of swinging of the lower link.



# **WARNING**

If any implement is mounted, turn the tractor slowly paying particular care for the space.



# **WARNING**

Do not make a sharp turn at high speed. Be sure to lower the engine speed before turning.



#### **WARNING**

Before starting the operation on slope, check for the existence of stone, irregularity or other dangerous factors which could lead to an accident.



#### MARNING

Do not operate the tractor at steep slopes as it may cause the vehicle to roll over.



# **WARNING**

While operating on downward slope, use the engine brake. Do not place the main shift in the "NEUTRAL" position.



#### MARNING

For towing, be sure to use the drawbar only. Set the hitch point below the center line of the rear axle.



# **WARNING**

Brake discs may show different levels of wear due to the more frequent use of right brake than the left brake, or vice versa. This difference in wearing may cause different braking on right and left wheels especially when the brake pedals are locked and this may cause the tractor to lean one side, or even get out of control. In order to prevent this, service the brakes frequently for equal braking and get them readjusted if necessary.

#### STOPPING THE TRACTOR

- 1. By pulling throttle lever, reduce engine speed.
- 2. Depress clutch pedal all the way.
- 3. Keep the brake depressed until the tractor comes to a complete stop.
- 4. Place the PTO shift in the "NEUTRAL" position.
- 5. Move main shift lever to NEUTRAL.
- 6. Move the sloop lever to NEUTRAL.
- 7. Remove foot off the clutch pedal slowly.
- 8. Stop the engine by moving the ignition key to 'STOP' position.
- 9. Apply parking brake.
- 10. Push hydraulic control lever slowly forward to lower implement to ground.
- 11. Remove the key.
- 12. Turn off illumination components, hazard warning light, rotating beacon lamp, etc.
- 13. Always get off the tractor from the left side, since the right side is the emergency exit. When you get off, do not lean on the hand lever, mirror, mirror lever, pedals, etc., if you need to lean on something, you can either use the handle on the left fender or steering wheel.



# A CAUTION

Be sure to always apply the parking brake while the tractor is in parking or standing.



#### **A** CAUTION

Select flat and level ground for parking.



# **A** CAUTION

Apply blocks to the front or to the back of rear wheels on the slope.



#### CAUTION

Do not park the tractor on oily, greasy or other slippery surfaces.

# SECTION 5. PERIODIC AND PREVENTIVE MAINTENANCE

|                                 | PERIODIC MAINTENAN                                     | CE TABLE        |                     |                     |                     |          |
|---------------------------------|--|-----------------|---------------------|---------------------|---------------------|----------|
| Section                         | Explanation  | Daily           | 50 saat             | 150 saat            | 250 saat            | Location |
| 524                             | Check engine oil level                                 | 0               |                     |                     |                     | 1        |
| ie                              | Change engine oil                                      |                 |                     |                     |                     | 18       |
| Engine                          | Change engine oil filter                               |                 |                     |                     |                     | 19       |
|                                 | Check oil leaks  | 0               |                     | С                   | О                   | 21       |
|                                 | Clean fuel filter                                      |                 | $\nabla$            | $\nabla$            | $\nabla$            | 2        |
|                                 | Replace fuel filter cartridge                          |                 | Ò                   | Ó                   | Ò                   | 22       |
| Fuel                            | Check injectors and injection pump                     |                 |                     |                     |                     | 23       |
| 교                               | Clean air filter cover                                 |                 | $\overline{\Delta}$ | $\overline{\Delta}$ | $\overline{\Delta}$ | 3        |
|                                 | Clean or replace air filter element                    |                 | $\triangle$         | $\triangle$         | $\triangle$         | 4        |
|                                 | Check fuel tank  |                 |                     |                     |                     | 24       |
| 90                              | Check radiator coolant level                           | 0               | 23                  | 85                  | 8                   | 1        |
| ï <u>ë</u>                      | Clean raidator grill                                   | $\triangle$     |                     |                     |                     | 5        |
| Cooling                         | Clean hood grills                                      | $\triangle$     |                     |                     |                     | 29       |
|                                 | Check seals around seperator plate                     | 0               |                     |                     |                     | 6        |
| / Brake<br>Steering             | Check oil level in transmission and final reducers     | 0               |                     | 0                   |                     | 7        |
| Bra                             | Check oil level in front axle and front reducers       | 0               |                     | 0                   |                     | 8        |
| n/<br>St                        | Change oil in transmission and final reducers          |                 |                     |                     |                     | 26       |
| sio<br>lic/                     | Change oil in front axle and front reducers            |                 |                     |                     |                     | 27       |
| mis                             | Replace transmission oil filter                        | 3               |                     |                     |                     | 20       |
| Transmission<br>/ Hydraulic / 9 | Check brake pedals free play and braking performance   |                 | $\nabla$            | $\nabla$            | $\nabla$            | 9        |
| = +                             | Check hand and foot clutch free play and effectiveness | \ \rightarrow \ | Ŏ                   | Ŏ                   | $\nabla$            | 10-11    |
| . <u>5</u>                      | Check battery electrolyte level                        | Ó               | Ò                   | Ò                   | Ò                   | 12       |
| Electric                        | Check V-belt stiffness                                 |                 | $\nabla$            | $\nabla$            | $\nabla$            | 13       |
| <u> </u>                        | Check alternator and startor performance               |                 |                     |                     |                     | 28       |
| 88                              | Check pressure in tires                                | 0               | 0                   | 0                   | 0                   | 14       |
| Other                           | Check torque of wheel bolts                            | 0               | 0                   | 0                   | Ŏ                   | 15       |
| ਰ                               | Check torque of transmission and engine bolts          | 0               | 0                   | 0                   | 0                   | 17       |
|                                 | Check torque of ROPS bolts                             |                 | Ŏ                   | 0                   | 0                   | 16       |

Table 4: Periodic Maintenance Table

|             | SYMBOS AND RELATED PROCEDURES                 |
|-------------|---|
| $\bigcirc$  | Check and/or replenish                        |
| $\triangle$ | Clean/Wash                                    |
| $\bigvee$   | Adjust  |
|             | Procedures to be performed only by the dealer |

Periodic inspection must be performed when necessary to keep your tractor operating in the top condition is indispensable.

First service must be performed after the first 50 hours of running. The service must be carried out in every 100 hours. 150 and 250 hour services must be carried out in every 200 hours respectively.

Annual servicing must be performed for tractors that are slightly or never used.

See log book for more detailed about servicing.

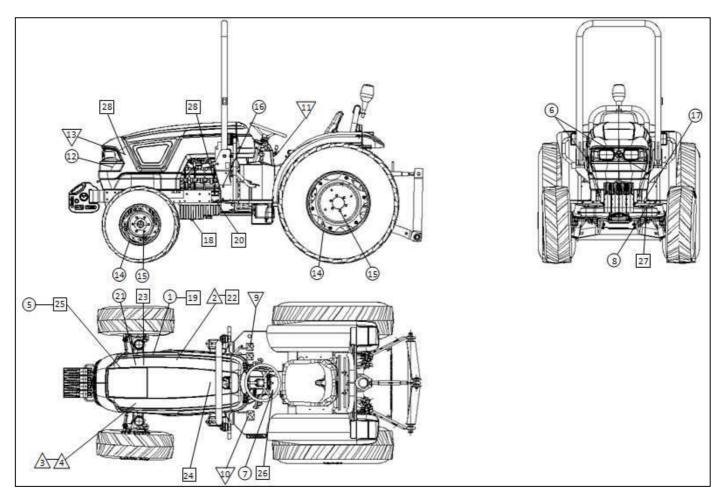


Figure 29

"Figure 29" shows the locations of each position described in "Table 4" on the tractor.

First three servicing will be performed by authorized distiributor dealers free of charge.

In addition to the maintenance procedures described above, visit you authorized dealer for the procedures every 1000 hours of operation.

- Calibrate the injections and injection pump.
- Empty fuel tank completely and clean it.
- Empty the radiator fluid completely to clean the radiator and replenish again as per the instruction described in this manual.

# **GENERAL RULES FOR MAINTENANCE**

The following section provides servicing instruction required for maintenance procedures. When carrying out the maintenance services for tractor or its parts, follow this instructions and perform the same sequence of procedures described.

Be sure to take safety precautions described in this manual when performing maintenance services.

Service periods given are the ones recommended by the manufacturer and are only for information purposes, earlier maintenance may be performed if deemed necessary.

#### **AIR CLEANER**

The air cleaner element, when remarkably stained or clogged, may prevent smooth start of the engine or deteriorate its performance, preventing normal operation. Keep the element always clean to ensure full performance of engine.

As known the air cleaner filters the intake air. Air cleaners used are mostly the types that are composed of 2 nested papers. These elements keeps 99.9% of the dust in the air. Depending on the operation conditions of the tractor, the element gradually becomes stained as operation hours increase.

Air cleaner must be checked daily, sealing must be checked and when clogged the element must be cleaned by blowing 5-6 bars compressed air to inside of it, And then it must be installed ensuring that it is free of ruptures or holes.

Sealing gasket is checked, it may be reused after washing with water and drying under shade. If it is not clean enough, you must replace it.

To clean the air cleaner, push the clips (1) shown in "Figure 30" towards (A) to unlock them, pull the cover (2) towards (2) to remove. Blow off with air the dust on the cover.

The filter has one cartridge inside and one outside.. Blow air from inside to outside to clean the external cartridge as seen in "Figure 31". Replace with a new one if it is not able to be cleaned. You must not clean the internal filter cartridge, replace it during maintenance.



Figure 30

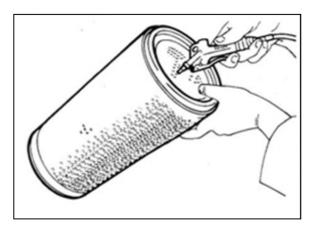


Figure 31



# A CAUTION

Do not use exhaust gases to clean the element.



# **A** CAUTION

Do not use oil, fuel, etc. to clean filter cartridges.



# **A** CAUTION

Do not cover the case without filter cartridges are placed, unintentional operation of the engine without the air cleaner may result in serious damages.

After cleaning the air cleaner, assembly it following the demounting instruction in reverse order.

#### **RADIATOR**

It has a critical function for engine cooling, performance and life. To ensure functioning, radiator grill and the grilles of the tractor must be kept clean and open. Level of the radiator coolant must be check daily.

Turn the cap no (1) as shown in "Figure 32" counterclockwise, loose by pressing and remove the cap.



# **A** CAUTION

Do not open the radiator cap when the engine is warm; as there is pressure inside the radiator, the pressurized steam might cause injury.



Figure 32

The radiator must be filled with coolant fluid to the 3 cm below from the top of the radiator cap; if the coolant level is below this level, add coolant.



#### CAUTION

In cold regions and cold weather conditions, never add only water to the radiator; if additives are necessary, add antifreeze solution.



# WARNING

If the radiator coolant level over the specified limit, do not pour the fluid out of the radiator; the excessive liquid will be drained through the hose on the radiator cap during use.

The tractor does not have an external overflow jar. The upper part of the radiator is designed to function like an overflow jar.

The table below shows the amount of antifreeze solution that needs to be used depending on the season and weather conditions.

| Minimum          | -8° | -15° | -25° | -35° |
|------------------|-----|------|------|------|
| Temperature (°C) |     |      |      |      |
| Volumetric       |     |      |      |      |
| antifreeze       | 20  | 30   | 40   | 50   |
| proportion (%)   |     |      |      |      |



#### A CAUTION

For the freezing temperature of antifreeze solution, always refer to manufacturer's information first; if it is not provided, refer to the information provided in "Table 5".



# A CAUTION

Replace the radiator coolant fluid for every 1000 hours or at least once a year, preferably before winter.



# A CAUTION

Always add clean and soft water to the radiator. River water or unclean, muddy or hard water may cause clogging and corrosion in the radiator and engine block.



# CAUTION

We recommend adding antifreeze to the radiator fluid for all seasons in order to prevent corrosion in the radiator and engine block.

To remove the radiator fluid, disconnect the hose from the lower part of the radiator to the engine and wait until it is completely drained.

After replacing or adding radiator fluid, assembly the parts by following the demounting instructions in reverse order.



#### CAUTION

Make sure that the radiator cap is closed tight and properly.

When adding or replacing antifreeze solution, the following rules should be observed, otherwise, the cylinder block will rust.

- 1. This tractor's engine is of a diesel type and its cylinder block is made of cast iron. Therefore. suitable anti-freeze solution for such a cast engine block must be used.
- 2. Before adding mixture of antifreeze and water, completely drain cooling water and clean the radiator with detergent.
- 3. Water to be added to antifreeze should be clean soft water.
- 4. If no antifreeze is used (not recommended), drain and wash the cooling system using detergent and refill it with clean water. Do not re-use antifreeze drained from the engine.



# **M** WARNING

Do not remove the radiator cap except for checking the coolant level or coolant replacement.



#### **WARNING**

To ensure a good cooling performance, make sure that the seals around the radiator (1) shown in "Figure 33" are complete and firm.



Figure 33

#### **FUEL FILTER**

To replace the fuel filter, first remove the hoses on the filter and loosen the clogging plug (4) shown in "Figure 34" to drain the fuel in the tank. Turn the filter housing (3) shown in "Figure 34" with a filter wrench counterclockwise and remove it. Clean the filter element in the filter housing, if necessary; if it is not possible to clean, replace with a new one and tighten it.

To drain the water in the filter, loosen the clogging plug (4) shown in "Figure 34" and let the water drain away through the hose at the lower part. Wait the water is fully drained and when the diesel starts to come through the hose, tighten the clogging plug securely.

To remove the air from the fuel system, first fill the fuel tank, connect fuel hoses and check for leakages; if you detect a leakage get the parts replaced at a dealer. Loosen the screw (2) shown in "Figure 34" and pump by repeatedly pressing the string (1) until fuel comes. Tighten the screw (2) after the fuel comes and pump 10-15 times more. This will help you remove the air from the fuel system. If it fails, repeat the same procedures.

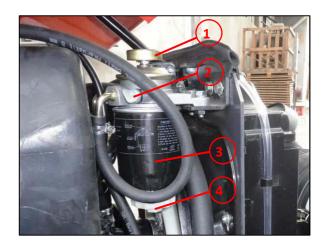


Figure 34



# A CAUTION

Do not smoke, and keep the flammable materials away while working on the fuel system parts.

Take necessary precautions to prevent the fuel from spilling around and on vehicle parts.

#### **ENGINE OIL FILTER**

To replace the engine oil filter, first drain all the engine oil and turn the filter housing (1) shown in "Figure 35" with a filter wrench counterclockwise to remove it. Replace and tighten the filter element.

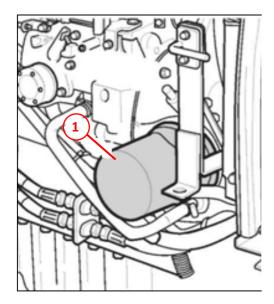


Figure 35

#### **ENGINE OIL LEVEL**

Place the tractor on a level ground to check the engine oil level. Check the engine oil level when the engine is cool and wait until it cools if the engine is warm.

Pull and remove the stick (2) shown in "Figure 36" and check if the oil level is between the two lines on it.

If the oil level is below the lines, add any oil from "Table 6" only as much as necessary to reach the proper level.

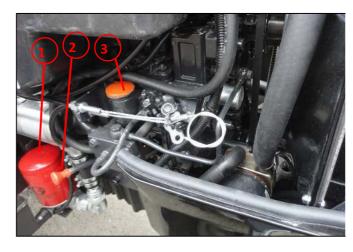


Figure 36

#### TRANSMISSION OIL FILTER

To replace the transmission oil filter, first drain all the transmission oil and turn the filter housing (1) shown in "Figure 36" with a filter wrench counterclockwise to remove it. Replace and tighten the filter element.

#### TRANSMISSION OIL LEVEL

Place the tractor on a level ground to check the transmission oil level. Check the transmission oil level when the transmission is cool and wait until it cools if the transmission is warm.

Pull and remove the bolt (1) shown in "Figure 37" and check if the oil level is between the two lines on it.

If the oil level is below the lines, add any oil from "Table 6" only as much as necessary to reach the proper level.



Figure 37

#### **BRAKE FLUID**

The tractor has hydraulic brakes which use hydraulic pressure to function. If the amount of brake fluid decreases due to some reasons, it must be topped up.

The hydraulic brake reservoir shown in "Figure 38" has two lines; this represents the range for normal brake fluid level.

If the fluid level decreases, open the cap (1) shown in "Figure 38" by turning it counterclockwise and add any oil from "Table 6" as much as necessary to reach the proper level.

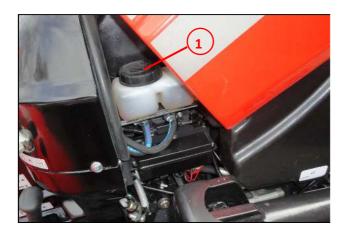


Figure 38

# A CAUTION

Pay maximum care while refilling the brake fluid; avoid contact with your skin or eyes and do not inhale. If the brake fluid accidentally contacts with an open wound, eyes or skin, or if it is inhaled or swallowed, wash the contact area with plenty of water and immediately see your doctor.



#### A CAUTION

The brake fluid can cause the paint of the tractor or other contacted areas flake away due to is chemical content. Pay attention to avoid spilling out while using it.



# A CAUTION

Never try to replace brake fluid. This requires post adjustment and removing the air from the system; therefore it should only be performed by authorized dealers.



# **A** CAUTION

Only use the oil types recommended in "Table 6" or an equivalent "DOT 4" oil for brake fluid. Using a different oil type may cause damage on seals, which can lead to decreases in oil or air formation in the system due to evaporation. The braking function might be partially or completely affected from these causes, which can lead to accidents with injuries or even deaths.

#### **ENGINE OIL REPLACEMENT**

First remove the cap (3) shown in "Figure 36". Then, remove the plugs (1) seen in "Figure 39" and wait until the oil drains away. When the oil drains away completely, insert the plugs with seals changed and tighten them securely.

To refill, use suitable oil described in "Table 6" at the level specified without overflowing by placing a funnel on the groove from which the cap (3) shown in "Figure 36" was removed. After refill, place the cap back.

After oil replacement, wait for 5 minutes to allow the oil to penetrate into the crankcase and check the oil level on the oil dipstick to make sure.

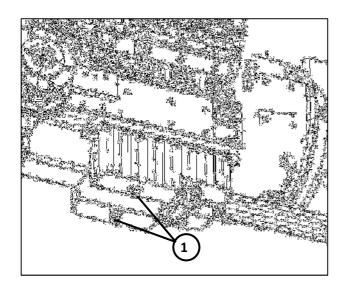


Figure 39



# A CAUTION

Run the engine at idle speed after oil replacement in order to enable proper lubrication of engine parts.



# CAUTION

During oil replacements, make sure that the waste oil does not spill around; pour all waste oil into containers and deliver them to oil collection centers. If you cannot find an oil collection center; you can deliver the waste oil to authorized dealers.

#### TRANSMISSION OIL REPLACEMENT

Move the 3P linkage arms to the lowest position before oil replacement.

First, remove the cap (1) and plugs (1) shown in "Figure 37" and "Figure 41", respectively. Then, remove the plugs (1 and 2) seen in "Figure 40" and wait until the oil drains away. When the oil drains away completely, insert the plugs shown in "Figure 40" with seals changed and tighten them securely. To refill, use suitable oil described in "Table 6" at the level specified without overflowing by placing a funnel on the groove from which the cap (1) shown in "Figure 37" was removed and on the plug holes (1) shown in "Figure 41". After replenishing, mount the plugs back and place the cover.

After oil replacement, wait for 5 minutes to allow the oil to penetrate and check the oil level on the oil dipstick to make sure.

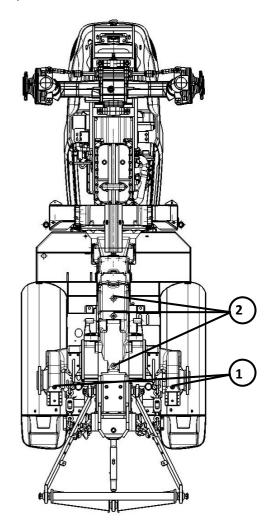


Figure 40

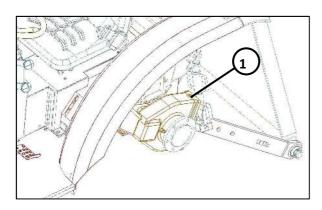


Figure 41



# A CAUTION

Run the tractor at idle speed after oil replacement order to enable proper lubrication of transmission parts.

#### **REPLACING THE OIL OF FRONT AXLE**

First remove the plugs (1) shown in "Figure 42". Then, remove the plugs (2) shown in "Figure 42" and (1) in "Figure 43" and let the oil flow out. After the oil is full discharged, replace the seals and mount the plugs (2) shown in "Figure 42" and (1) in "Figure 43" and fully tighten.

To replenish, use suitable oil described in "Table 6" at the level specified without overflowing by placing a funnel on the plug holes (1) shown in "Figure 42" . After replenishing, mount the plugs back and place the cover.

After oil replacement, wait for 15 minutes to allow the oil to penetrate and check the oil level to make

To check the front axle oil level, remove the plugs (3) shown in "Figure 42". Normally the oil level reaches just under this plug.

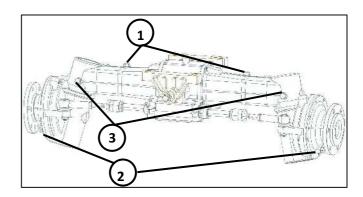


Figure 42

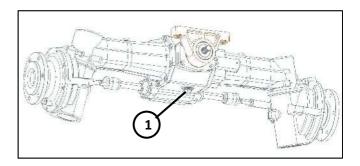


Figure 43



# A CAUTION

After any kind of oil replacement procedure and on a daily basis, check the plugs, joints and hoses for oil leakage; if any leakage is identified, consult you dealer as soon as possible for remedy.

|                | _             | .UBRICATIO    | N TABLE -  | BRICATION TABLE – RECOMMENDED LUBRICANTS | NDED LUBR              | ICANTS                  |                   |
|----------------|---------------|---------------|------------|--|------------------------|-------------------------|-------------------|
| N <sub>O</sub> | Application   | Specification | Amount(lt) | ВР                                       | CASTROL                | MOBIL                   | SHELL             |
| 1              | Engine        | API SL/CF-4   | 6          | Vanellus<br>Universal<br>15W-40          | Agri Classic<br>15W-40 | Delvac MX               | Helix HX5G        |
| 2              | Transmission  | API GL 4      | 20         | Hypo Gear<br>80W-90                      | GP 80W-90              | Mobilfluid 422          | Donax TD          |
| 3              | Front Axle    | API GL 5      | 1.5 + 1.5  | Energear Hypo<br>85W-140                 | Axle EPX<br>85W-140    | Mobillube HD<br>85W-140 | Spirax<br>85W-140 |
| 4              | Final Reducer | API GL 5      | 1+1        | Energear Hypo<br>85W-140                 | Axle EPX<br>85W-140    | Mobillube HD<br>85W-140 | Spirax<br>85W-140 |
| rv             | Brakes        | DOT 4         | 0.2        | Hydraulic Brake<br>Fluid DOT 4           | Brake Fluid<br>DOT 4   | Brake Fluid<br>DOT 4    | Donax YB<br>DOT 4 |

Table 6: Lubrication Table

#### **REFUELLING**

When the fuel warning light goes on or the pointer comes over the red zone, you must refuel your tractor as soon as possible.

For refueling, remove the tank cap (1) seen in "Figure 44". Tank cap is locked with a key code and has to be locked/unlocked with the ignition key. To unlock the tank cap, place ignition key to the tank cap and turn counterclockwise without moving the cap. After unlocking, remove the cap by twisting counterclockwise.

Refill the tank 1 cm below the tank cap; overfilling may cause overflowing when placing the cap back.

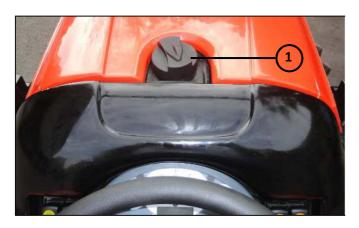


Figure 44

# **A** CAUTION

Do not smoke and keep flaming objects at distance when refueling.

When refueling is completed, place the cap back and securely fasten by twisting it counterclockwise until you hear a "click" sound. After you hear the sound, lock the tank cap by placing the ignition key to the slot on the cap and twist the key clockwise without moving the cap.

#### **ADJUSTMENT OF FAN BELT TENSION**

Check fan belt tension periodically.

Proper deflection is 8-10mm. Fan belt must be seated on the pulley at sides; it is not proper for it to be seated at the bottom, if the latter happens replace the fan belt.

To adjust the tension, loosen the nut (1) seen in "Figure 46" and pull the alternator towards yourself to stretch the belt using a lever. After proper tension is obtained, tighten the nut securely.

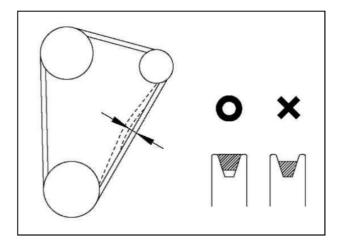


Figure 45

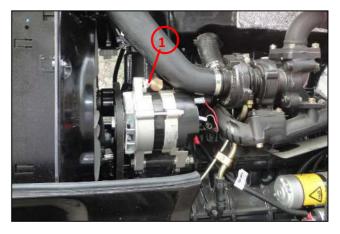


Figure 46

#### **ADJUSTMENT OF CLUTCH PEDAL**

#### **FOOT CLUTCH**

Foot clutch free play must be check on a daily basis. The play of the foot clutch is appropriate if it is between 2 to 3 cm. The free play must be adjusted if not appropriate.

To adjust free play, loosen the nut (1) seen in "Figure 47"; twist the part (2) clockwise or counterclockwise from driver's seat perspective to reduce or increase the amount of free play, respectively. After obtaining proper adjustment, tighten lock nut (1) to secure it.

#### **HAND CLUTCH**

Hand clutch free play must be check on a daily basis. The play of the foot clutch is appropriate if it is between 1.5 to 2.5 cm. The free play must be adjusted if not appropriate.

To adjust hand clutch free play, open the bonnet first and loosen or tighten the nut (1) seen in "Figure 48" to reduce or increase the amount of free play, respectively. Normally, it is not necessary to remove any parts for making this adjustment; however, if you are not able to reach the nut, you may remove side part of the dashboard housing to adjust the nut as an alternative. Until proper adjustment is obtained, loosen or tighten the nut (1).

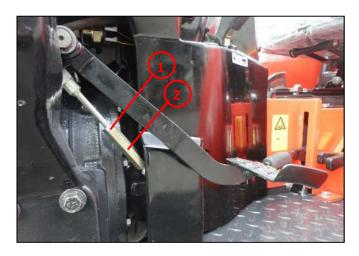


Figure 47

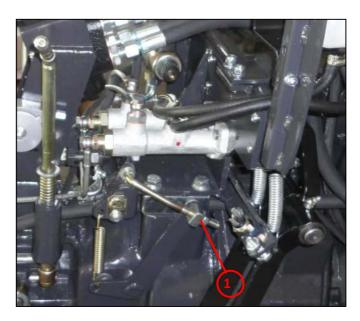


Figure 48

#### **BRAKE ADJUSTMENT**

#### **FOOT BRAKE**

Foot clutch free play must be check on a daily basis. The play of the foot clutch is appropriate if it is between 1 to 2 cm. The free play must be adjusted if not appropriate.

To adjust free play, open the bonnet first and loosen the nut (1) seen in "Figure 49"; twist the part (2) clockwise or counterclockwise from driver's seat perspective to reduce or increase the amount of free play, respectively. After obtaining proper adjustment, tighten lock nut (1) to secure it. In addition to the brake free play adjustment, disc tightness must also be adjusted. Disc adjustment is crucial for proper braking.

To adjust discs, jack up the wheel to be adjusted (only the wheel to be adjusted). Twist and tighten the nut (1) seen in "Figure 50" while at the same time turning the jacked up wheel by hand. Continue to tighten the nut until the wheel is locked and is not able to be turned any more. When the wheels are locked, loosen the nut by a half turn.

Perform this procedure separately for each wheel.



# **A** CAUTION

Unbalanced braking or accidents may occur due to the earlier wear of discs caused by the independent use of left or right brakes. In order to prevent this from happening, service the brake discs frequently.



# **A** CAUTION

Since the adjustment of brake discs must be performed carefully, it is very important that you visit your dealer and use brake dynamometer to check your brake discs.



Figure 49



Figure 50

#### **HAND BRAKE**

Parking brake operates independently from the brake pedal, yet squeezes brake discs through the same mechanism. When the brake disc is adjusted, it also applies to the hand brake.

Adjust the distance between stoppers and nuts (1) seen in "Figure 51" and "Figure 52" in a way to leave 2 clicks on hand brakes.



Figure 51

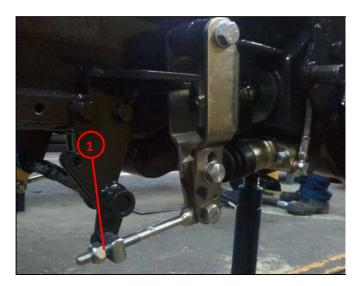


Figure 52



Figure 53

# **AXIAL TRAVEL ADJUSTMENT OF FRONT AXLE**

When the axial travel amount of front axle increases, it must be adjusted properly.

Jack up the front axle first to adjust axial travel. Loosen the nut (1) seen in "Figure 53" and adjust travel amount to 0.1-0.3mm by tightening the bolt (2). After the adjustment is completed, secure the bolt with the lock nut (1). After the proper adjustment is obtained, the axle must oscillate freely, if so, lower the jack.

#### ADJUSTING TOE-IN ON FRONT AXLE

Tire toe-in on the front axle is adjusted for driving comfort and easier steering control.

Front side of the front tires is a bit more turned in (75-90mm) than the rear side; this alignment is called front axle toe-in.

If this alignment is not proper, it should be readjusted. For detailed information on adjustment, see section "FRONT AXLE".

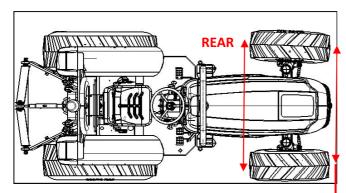


Figure 54 **FRONT** 

#### TIRE REPLACEMENT

Tractor tire replacement requires expertise, special equipment and tools. Perform this procedure only at authorized tire dealers.



# MARNING

We recommend you to replace your tires when treads reach 70% wear or fractures occur.



#### **CAUTION**

It is important that you replace all tires at the same time, otherwise your new tires will also be worn out during the time due to different slip angles between used tires and the new ones, and your fuel consumption will increase.



# CAUTION

Do not throw away or scrap the old tires after replacement, it is very harmful for environment. Consult the service for appropriate recycling.



# A CAUTION

Use only recommended and same-size tires when replacing. Different pairs of tires will cause earlier wear of the tires and overconsumption of the fuel due to the different slip angles.

# CAUTION

Using larger-size tires may cause trouble in terms of the resistance of the tractor and its interaction with the surrounding parts; use recommended tires only.

# WARNING

To extend the life of your tires:

- 1. Operate the tractor at the proper shift and speed avoiding slippage.
- 2. Do not engage the 4WD option when driving particularly on asphalt, if not required.
- 3. Do not expose your tires to sunlight when the tractor is not running.
- 4. Do not place tires on humid ground or in water for a long time.
- 5. If you are storing spare tires, make sure that they are rimmed and inflated to the half amount of the recommended maximum inflation pressure; do not pile more than 4 tires on top of another.
- 6. Do not fill tires with water unless required as weight; when you finish your work, drain the water away.
- 7. Do not apply ballast weight unless necessary.
- 8. Check tire pressure regularly (min. once a week) and inflate if necessary.

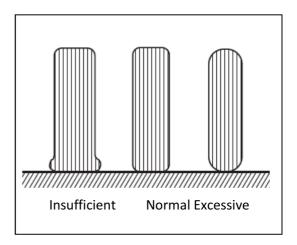


Figure 55

#### **SAFETY START CONTROL**

The Tractor is equipped with a safety starter switch to protect the operator and the persons around him from potential dangers caused the abrupt starting of the engine with gear applied or an implement mounted.

This safety system prevents tractor from starting before shuttle lever and PTO shift lever are placed in NEUTRAL and the clutch is depressed.

To make sure if this function works properly, try starting the tractor when PTO shift lever and/or shuttle lever is engaged and the clutch pedal is depressed or not. If the tractor does not start, it means that these functions are working properly. If the tractor starts when even one of the

conditions above is not met, take it to your dealer as soon possible for repair.

# CAUTION

When checking the function, make sure that the main shift lever is in neutral and hand clutch lever is not engaged (lower) for your safety.

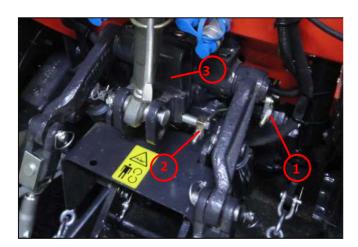


Figure 56

#### **HYDRAULIC CONTROL ADJUSTMENT**

Operation of the hydraulic control systems of the tractor is described in sections "HYDRAULIC LIFT" and "3 POINT LINKAGE SYSTEM". In order that controls are functioning properly, the mechanical adjustments must be performed fully.

If any problem occurs relating to the operation of the hydraulic system, check the adjustments below.

# MARNING

When performing these adjustments, mount a 150kg weight to the links in order to see and evaluete the impact.

In order to adjust position control:

- 1. Release the hydraulic valve lock.
- 2. If the arms do not go up when the position control lever is pushed forward, tighten the nut (1) seen in "Figure 56".
- 3. If the arms are moving when the position control lever is applied lower but you want it to move at a higher position, loosen the nut (no1) seen in "Figure 56".

In order to adjust depth control:

- 1. Move the weight on the lifting arms upward using position control lever but do not adjust it to the highest level; try to keep it at a medium level.
- 2. Release the hydraulic valve lock.
- 3. Stretch the precision string (3) seen in "Figure 56" by using the middle arm to apply force to the front side of the tractor.
- 4. If the mounted weight does not move despite stretching the string, tighten the nut (2) seen in "Figure 56" and continue to tighten the nut until the weight moves.
- 5. Loosen the nut (2) seen in "Figure 56", if the mounted weight is moving too much when a little amount of force is applied, or if the weights are moving when the force is stopped instead the force is applied.

# **GREASING LOCATIONS**

Certain moving mechanisms of the tractor are lubricated with grease oil. This oil may diminish or lose its function in time due to use. If these parts are stuck during the operation or any other problem occurs, the following locations should be greased.

# **WARNING**

For greasing, use general purpose lithium Number 3 grease only.

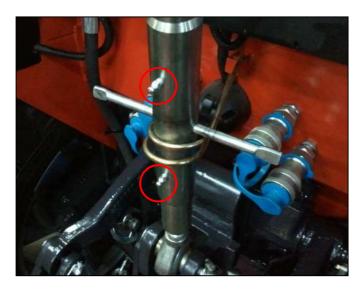


Figure 57: Middle Arm



Figure 58: Lifting Arm

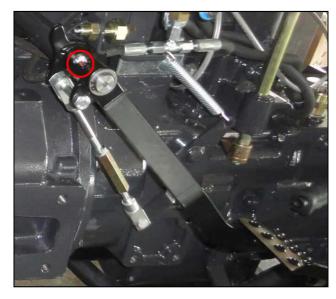


Figure 59: Clutch Shaft

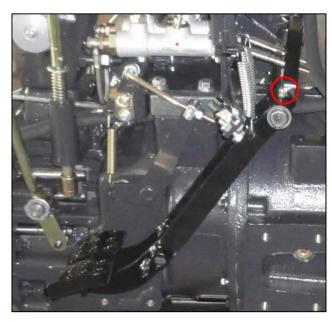


Figure 60: Brake Shaft

#### INJECTION NOZZLE INSPECTION

# **A** CAUTION

Inspection of injection nozzles requires expertise and special equipment; the inspection must be performed only at authorized service centers. Operator instructions provided in this section are only for information purpose.

When the injection pressure of the nozzle is lowered or injection deteriorates, the exhaust gas becomes extremely black resulting in the loss of engine power and the engine will also make greater noise.

Be sure to always maintain the correct injection pressure of 150 - 160 kgf/cm<sup>2</sup> (2134 - 2271 psi).

Normally the exhaust gases are unstained. In case of abrupt acceleration, black gas can be observed for a short period of time but it turns back to normal (unstained) immediately.

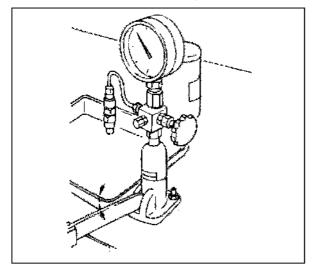


Figure 61

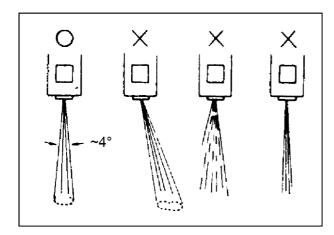


Figure 62

#### **CYLINDER HEAD BOLT TIGHTENING**



# **A** CAUTION

Removal and mounting of cylinder head requires expertise and special equipment; the inspection must be performed only at authorized service centers. Operator instructions provided in this section are only for information purpose.

When you need to open the cylinder head, loosen the bolts in the same sequence with numbers from 18 to 1 as seen in "Figure 63".

When mounting the cylinder head, tighten the bolts in the same sequence with numbers from 1 to 18 as seen in "Figure 63".

When tightening the bolts adjust the clearance first and in the same order described first tighten with 40Nm torque and then following the same sequence tighten 90° with angled torque meter and once again in the same order tighten it 80° for the last time with angled torque meter.



#### CAUTION

The bolts used in the cylinder head are single use special extension bolts. After every removal of the head, the cylinder head must be mounted using new bolts.

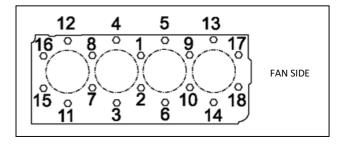


Figure 63

#### **VALVE CLEARANCE ADJUSTMENT**



## **A** CAUTION

Inspection and adjustment of valve clearance requires expertise and special equipment; the inspection must be performed only at authorized service centers. Operator instructions provided in this section are only for information purpose.

Adjust the valve clearances when the sound of the tappets is loud or when the engine does not run smoothly. The valve clearance should be checked with a cold engine. Bonnet, tank and engine cover must be removed for adjustment.

Move the piston to the location shown in "Figure 64" by rotating the engine crankshaft from fan by hand or directly with key and check the clearance of marked valves with thickness gauge as seen in "Figure 65". Adjust the valve clearances by loosening the lock nut (B), the adjusting screw (A) using a screwdriver and then applying a thickness gauge (C). When locking the adjusting screw by means of the lock nut (B), support the adjusting screw firmly using a screwdriver so that both are not rotated together.

Valve clearance: Intake & Exhaust 0.2 mm.

|   | Piston no.1 is at top dead center and valves are at overlap position with the valves closed |         |    |         |    |         |    |         |          |
|---|---|---------|----|---------|----|---------|----|---------|----------|
| an  | E 1 2 3 4   |         |    |         |    |         | _  |         |          |
| Cooline fan   | EM  | EG      | EM | EG      | EM | EG      | EM | EG      | Flywhee  |
| Соо   | •   | •       | •  | 0       | 0  | •       | 0  | 0       | Flyv     |
| Piston no.1 is at top dead center with valves overlapped (Rotate 360° from upward position) |   |         |    |         |    |         |    |         |          |
|   |   |         |    |         |    |         |    |         |          |
|   |   | 1       | :  | 2       |    | 3       |    | 4       |          |
| ng fan  | EM  | 1<br>EG | EM | 2<br>EG | EM | B<br>EG | EM | 4<br>EG | leel     |
| Cooling fan   | ЕМ  | EG O    |    | _       |    | _       | EM | EG      | Flywheel |

Figure 64

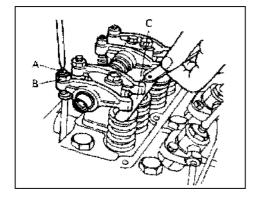


Figure 65 61

#### **SETTING INJECTION PUMP TIMING**



## **A** CAUTION

Adjustment of injection pump requires expertise and special equipment; the inspection must be performed only at authorized service centers. Operator instructions provided in this section are only for information purpose.

A certain amount of variation can apply to the injection pump timing due to mechanical wear. This problem is indicated by the loss of engine power, the exhaust gas becoming extremely black and the engine making greater noise.

In some cases white exhaust gas can be observed in high altitude geographical regions; ignition advance may need to be adjusted for proper engine performance.

Factory setting for engine ignition advance is 12°. For adjustment, perform the following in the same order:

- 1. Remove the engine shut-off solenoid or place the key to ignition-1.
- 2. Remove the safety frame and check the lines on the flywheel looking through the peep hole on the right side of the flywheel housing or track top dead centers or ignition timings by checking the lines on the crank pulley.
- 3. To find the "1,4 AZ' sign on the flywheel, twist the flywheel (see "Figure 67"). You can twist the flywheel by placing a ring spanner to the hub (see "Figure 66")

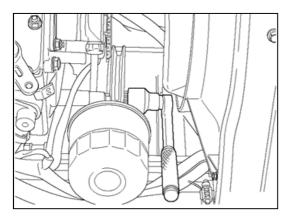


Figure 66

Definitions for the abbreviations on the flywheel are as follows:

"1,4 AZ": Injection timing for 1<sup>st</sup> or 4<sup>th</sup> cylinder.

"1,4 UN": Top dead center timing for 1st or 4th cylinder.

"2,3 AZ": Injection timing for 2<sup>nd</sup> or 3<sup>rd</sup> cylinder.

"2,3 UN": Top dead center timing for 2<sup>nd</sup> or 3<sup>rd</sup> cvlinder.

There is a 360° (one crankshaft cycle) phase difference between the first cylinder and fourth cylinder.

There is a 360° (one crankshaft cycle) phase difference between the second cylinder and third cylinder.

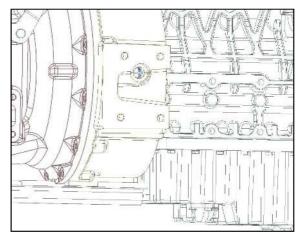


Figure 67

- 4. When the sign is found, turn the crankshaft about 30° counterclockwise (when viewed from the front of the engine).
- 5. "1,4 AZ', means injection timing for cylinders 1
- 6. To turn the crankshaft by holding with a ring spanner, use a special service tool (ring spanner). Remove the high pressure pipe.
- 7. Slightly loosen the nozzle holder, the part (1) shown in "Figure 68" and tighten after filled with fuel as seen in "Figure 68".
- 8. Wipe the fuel on the nozzle holder with a clean cloth and leave only a small amount of fuel.
- 9. Observe the fuel on the nozzle holder by slowly turning the crankshaft clockwise (when viewed from the front side of the engine).
- 10. The moment when the fuel on the nozzle holder increases abruptly is injection timing.
- 11. If the fuel increases too much, it means the injection time have passed. To identify the time when the fuel amount increases, repeat the procedure above.

- 12. If the fuel does not increase, it is exhaust time. Therefore, turn the crankshaft 360° and repeat the procedures above to find the compression time.
- 13. Mark the injection timing measured from the timing window and measure the interval between your mark and "1, 4 AZ'. Note this measurement; it will be used when calculating the shim for adjustment of pump timing.

Taking the positions of two points on the flywheel housing into consideration, if the line on the flywheel seen on the window during the observed injection time is; (see "Figure 70")

- I. in alignment, it means the ignition advance is in factory settings; no adjustment is required.
- II. above the level, it means the advance is insufficient, delay is required.
- III. under the level, it means the advance is excessive; it requires to be put forward.

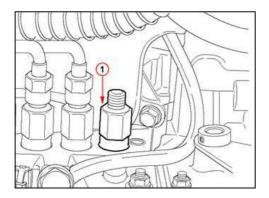


Figure 68

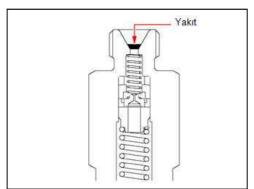


Figure 69

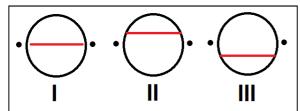


Figure 70

To adjust injection timing, it is required to add/remove shims, the parts (1) shown in "Figure 71", under the pump.

To delay injection timing (increase ignition timing, e.g. from 10° to 12°), reduce shims.

To put injection timing forward (reduce ignition timing, e.g. from 14° to 12°), increase shims.

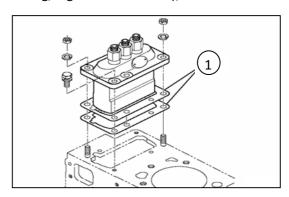


Figure 71

At the 9" flywheel option, every 2.4mm is equal to 1°.

At the 11" flywheel option, every 2.9mm is equal to 1°.

To delay injection timing to 1°, add 0.1mm shim under the pump.

To put injection timing 1° forward, remove 0.1mm shims under the pump.

To identify the flywheel type, use the overall dimensions (A) of the flywheel housing shown in "Figure 72".

This is 390 mm for tractor with 9" flywheel.

This is 436 mm for tractor with 11" flywheel.

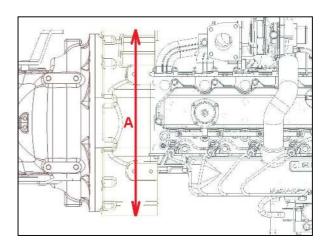


Figure 72

#### **ELECTRICAL SYSTEM**

#### **BATTERY**

The tractor is equipped with a maintenance free battery which normally does not require special maintenance.

The specific gravity of battery electrolyte Is  $11280 \text{kg/m}^3 \pm 0.01 \text{ at } 20^{\circ}\text{C}.$ 

Keeping clean and servicing the battery, increase the service life. To reach the battery, open the bonnet; you will see it at the foremost part of the

During maintenance, pay attention to the following points.

- 1. The battery must be securely mounted on the tractor.
- 2. Battery terminals must not be loose and must be fully tightened. (+) and (-) terminal cables must also be connected to the tractor securely.
- 3. When the battery is not used for a long period of time in cold weather, check the specific gravity and charge the battery periodically.
- 4. In order to prevent the development of rust or other corrosion at the battery terminal, coat the terminal lightly with gel.
- 5. Before demounting the battery, be sure to shut down the engine and turn off all the electrical switches. Battery cable at earthing end (negative terminal end) should disconnected first.
- 6. For cleaning the terminal stud, first remove the battery cable then use a wire brush for cleaning it.
- 7. For the reinstallation of the battery, make sure to set it on the battery support properly.
- 8. For connecting the battery cables, connect (+) end of it first, followed by earthing end.
- 9. Check the electrolyte level after battery recharging; if necessary, add distilled water until it reaches the proper level.
- 10. Check battery terminals for acidification. If any, clean the terminal stud with a wire brush after removing and grease it after mounting back.
- 11. Keep the battery fully charged during winter months to prevent freezing. When you add

- water to the battery during freezing cold, run the engine at least for an hour to allow the electrolyte to fully merge.
- 12. If necessary, add only distilled water; never add acid. For guidance see "Figure 74".
- 13. If the tractor is not used, recharge the battery once a month.



Figure 73

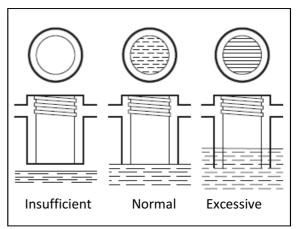


Figure 74



## **A** CAUTION

The electrical system is of negative earth type. Care should be taken to ensure that the battery terminals are correctly connected when installing the battery.

For dependable battery service, see your local dealer.



## CAUTION

Do now throw away or scrap the unserviceable battery. It contains heavy metals and chemicals and is very harmful for the environment. Consult your dealer for delivery.

#### **BOOSTER CONNECTION**

In case the battery has run down making it impossible to start the engine, the booster is used for starting the engine using good battery of the other vehicle (12V vehicle) as power source.

- 1. Select a booster cable with as large a capacity as possible. It must resist a 200A current.
- 2. Stop the engine of the vehicle (source side) which is in normal operation.

Connect a clip of the booster cable (in red) to (+) terminal of the battery on the troubled vehicle and firmly connect another clip to (+) terminal of the normal vehicle.

- 4. Then connect a clip of another booster cable (in black) to (-) terminal of the normal vehicle and finally connect another clip firmly to the engine block.
- 5. Start the engine on the troubled vehicle. If the engine is difficult to start, try to start it after starting the engine of the normal vehicle.



#### **A** WARNING

Do not fail to perform in above order.

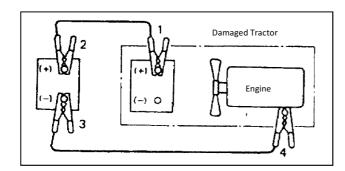


Figure 75



#### CAUTION

During the final connection, spark will be generated. Therefore, connect the (-) clip to the engine block at as far away point from the battery that is generating gas as possible.



## **WARNING**

Before connecting the cables, remove the electrolyte port plugs where possible, because as long as such plugs have been removed, the explosion will be smaller even if it may catch fire resulting in smaller damage.



#### A CAUTION

During charging, hydrogen gas is generated on terminals. Since this is a flammable gas, it is very important that the environment is properly ventilated during charging. Do not smoke and keep flaming objects at distance during charging.

After the engine is started, remove the booster cables in the reversed procedure of above.

- 1. First remove the (-) end clip from the engine block of the troubled vehicle, then remove another clip from the (-) terminal of the normal vehicle.
- 2. Then remove a clip from (-) terminal of the normal vehicle, followed by removal of another clip from the (-) terminal of the troubled vehicle.

#### **BATTERY RECHARGING**

- 1. Remove battery terminal cables. You must remove first the chassis cable and then the (+) cable.
- 2. Remove the bracket securing the battery to the tractor and remove the battery.
- 3. Connect the terminals to the charger properly.



## **A** CAUTION

See charger manual for correct connection and usage.

- 4. For charging the battery on this tractor, a slow charging operation should be carried out at 4.5 amp.
- 5. In case the specific gravity is below 1.200kg/m3, make lower rate charging at 3 amp. For more information, consult local dealer.



## **WARNING**

Do not forget to turn off illumination elements such as head lamps, hazard warning light and rotating beacon lamp when the tractor is not operated; do not turn on/off the ignition consecutively and do not use the battery in a way making it discharged quickly.



## **A** CAUTION

For charging the battery on this tractor, a slow charging operation should be carried out at 4.5 amp. See section "SAFETY PRECAUTIONS".

## PROPER BATTERY SERVICE AND TIPS FOR SAFETY

| Process                  | Maintenance   | Safety Clues  | Check<br>Electolyte | Attention<br>to<br>Explosion |
|--------------------------|---|---|---------------------|------------------------------|
| Electrolyte Level        | Add if level is low.  | Pay attention for leaking electrolyte.  | X                   |                              |
| Density                  | Replace if lower then 1200 kg/m3.   | Pay attention for leaking electrolyte.<br>See battery charging info.  | X                   |                              |
| Battery Test Device      | Check charge level. Charge if not suitable.   | Pay attention for sparks.   |                     | X                            |
| Visual Check             | Clean if dirty. Replace if deformed or cracked.   | Pay attention for leaking electrolyte.  | x                   |                              |
| Electrolyte Plug         | Check dirts, deformation or loosen. Clean if dirty and tighten.   | Check occlusion on plug.  |                     |                              |
| Terminals and Bracket    | Tigten if loosened.<br>Clean if oxidized.   | Pay attention for sparks.   | X                   | X                            |
| Adding Electrolyte       | Add pure water untill declared level.   | Do not fill excessive.  | Х                   |                              |
| Charging                 | Connect (+) ve (-) poles carefully and start charging.<br>Stop charging device before disconnecting poles . | Process charging in a good ventilated area, pay attention to current, sparks, heat, sulfiric acid and gases.  Open battery plugs. | х                   | х                            |
| Tightening               | Tighten carefully terminals and bracket.  | Avoid damaging parts by excessive tightening.   |                     | X                            |
| Cleaning                 | Clean battery surface, terminals and bracket. Check occlusson from plugs.                                   | Avoid damaging parts and plugs.   | X                   | X                            |
| Terminals                | Disconnect (-) pole first. Connect (-) pole last.   | Pay attention for sparks.   |                     | X                            |
| Bracket                  | Disassembly: First disconnect poles. Assembly: Avoid loosen bolts.  | Tigten bolts with suitable torque. Pay attention for sparks.  | X                   | X                            |
| Battery                  | Replace: Choose suitable battery for tractor. Transport: Handle with care.                                  | Pay attention to (+) ve (-) poles. Do not drop.   | X                   | X                            |
| Battery with Electrolyte | Select suiable dry and protected place from direct sun light for storage.  Periodically charge.             | Pay attention for sparks and leaks.   | х                   | X                            |
| Scrapping                | Refer to service.   | Pay attention for sparks and short cirtcuits.<br>Keep away from children.   | х                   | Х                            |

Table 7

#### **HEADLAMPS**

Perform periodic maintenance in order not to disturb other drivers when using the front head lamps of the tractor on roads, and to comply with the laws and regulations.

Your tractor is equipped with a proper head lamp in accordance with the local and country laws and provides suitable head lamp alternatives for right-and left-hand traffic patterns.



#### WARNING

Adjustment of the front head lamps is a device requiring procedure; we recommend you to visit your dealer.

Illumination adjustment of the front head lamps can be performed alternatively as follows:

- Pull your tractor over on a smooth surface next to a white wall with head lamps positioned as nearest as possible to the wall, after loads and weights are disconnected and the tires are adjusted to the recommended road pressure.
- Turn on the head lamps and draw a line on the wall right through the middle of the highest and lowest point illuminated by the head lamps. Now draw a vertical line on the wall towards to ground at the level aligned with the center of the tractor.
- 3. Pull the tractor 5 meters backwards.
- 4. Illumination cone of the head lamps must collide with the line drawn on the wall. Maximum variation may be 130 mm.
- For each head lamp, the distance between the refraction on the illumination cones and vertical line must be equal. Maximum variation may be 50mm.
- 6. If the adjustments above is not proper, adjust by tightening/loosening the screws (1) shown in "Figure 76". These screws are on the back of the head lamps; you must open the bonnet first.

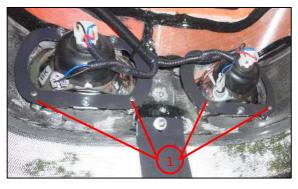


Figure 76

#### **TRAILER PLUG**

There is a 7 terminal plug at the tractor. Location of pins and the terminal connection of the plug are as follows:

- 1. Right Hand-Side Turn Signal
- 2. Chassis
- 3. NEUTRAL
- 4. Left Hand-Side Turn Signal
- 5. Brake
- 6. Parking
- 7. NEUTRAL

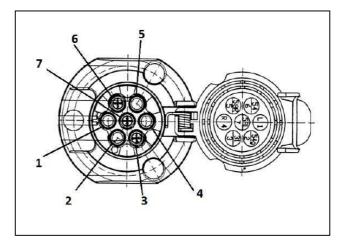


Figure 77

#### **ILLUMUNATION LAMPS**

The specifications for the bulbs used in illumination lamps are as follows:

Front head lamp: 12V 55/60W bulbs, double filament each

Front parking lambs, 12V 5W bulbs each Front signal lambs, 12V 21W bulbs each

Rear parking lambs, 12V 5W bulbs each Rear signal lambs, 12V 21W bulbs each Braking lambs, 12V 21W bulbs each

Rotating beacon lamp 12V 55W bulbs

Plate lightning 12V 4W bulbs

If the bulbs are burn, contact your dealer for replacement.

#### **FUSES**

The tractor is equipped with a fuse in the circuit to protect the electrical system against jump starts and overloads.

Fuses installed in the tractor is shown in "Figure 77".

- 1. Main Fuse (80A)
- 2. Fuse Box



Figure 77

To replace the damaged fuse, remove the covers by hand to reach the fuses.

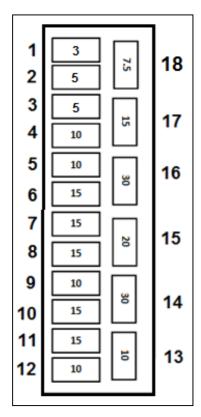


Figure 78

#### **GLOW PLUG**

The glow plugs are of a sheathed type and connected in parallel. Therefore, if one of the plugs is disconnected, performance is not totally defective. When the heat wire of the glow plug is disconnected, the preheat time of the control resistance is abnormally prolonged. When the center polarity, the body and the sheath come In contact with one another, the glow signal lamp will be heated quickly and the wiring of the pre-heated circuit will burn out.

See "Figure 78" for locations of the fuses in the fuse box.

The circuits equipped with fuses are described below:

- 1. Instrument Parking Lights
- 2. Main Illumination Parking Lamps
- 3. Rear Illumination Lamps
- 4. Left Hand-Side Turn Signal
- 5. Right Hand-Side Turn Signal
- 6. Front Head Lamp High Beam
- 7. Front Headlight Low Beam
- 8. Signal Switch Direct Electric
- 9. Differential Lock / Instrument
- 10. Stop Solenoid Relay / Alternator
- 11. Brake
- 12. Signal Switch Ignition 1
- 13. Rotating Beacon Lamp
- 14. Ignition key Direct Electric
- 15. Starter Motor Start Flasher
- 16. Stop Solenoid Relay Direct Electric
- 17. Spare
- 18. Spare

#### **RELAYS**

Relays in the electrical circuit of the tractors are shown in "Figure 79" and "Figure 80".

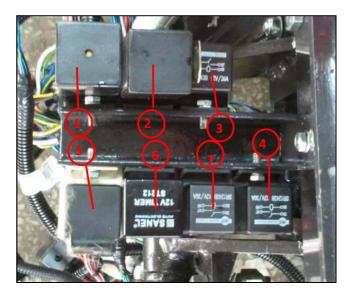


Figure 79



Figure 80

The functions of the relays are listed below:

- 1. Buzzer
- 2. Flasher
- 3. Front Head Lamp Low Beam Relay
- 4. Front Head Lamp High Beam Relay
- 5. Shut-Off Solenoid Relay
- 6. Timer
- 7. Starter Relay
- 8. Glow Relay

Relays are located under the tank except for the glow relay; it is placed under the upper part of the dashboard housing.

To reach the relay, bonnet, tank and dashboard upper housing parts must be removed.

Contact your dealer in case of relay failures for repair or replacement.

#### **STARTER MOTOR**

Starter motor is a maintenance free motor. In case of failure, contact your dealer.

Stretch and check the tightness of the cable connections on the starter motor by hand; if loose, tighten.



## **A** CAUTION

Always remove the (-) terminal before performing any procedures on the electrical system.

When you are done, mount them back and securely tighten.



### A CAUTION

Never attempt to start the tractor by hotwiring through starter motor; it is highly dangerous.

#### **ALTERNATOR**

Alternator charges the battery during engine running. It s bearing are special and maintenance free. In case of failure, contact your dealer.

Pay attention to the following points about the alternator:

- 1. If the polarity of alternator is reversed, the diode will short-circuit and burn and damaged.
- 2. Never run the alternator (engine) with the battery disconnected. When the battery is not connected, voltage may increase excessively and it will be dangerous to contact with alternator leads.
- 3. Do not ground the alternator terminals through chassis; this may damage the electrical system.
- 4. Make sure that the alternator chassis connection leads and the battery chassis connection leads are the same; otherwise it may cause alternator diodes to be damaged.
- 5. Make sure that the battery terminals and alternator connections are removed when performing welding on the tractor.

## **INSTRUMENT PANEL WIRING DIAGRAM**

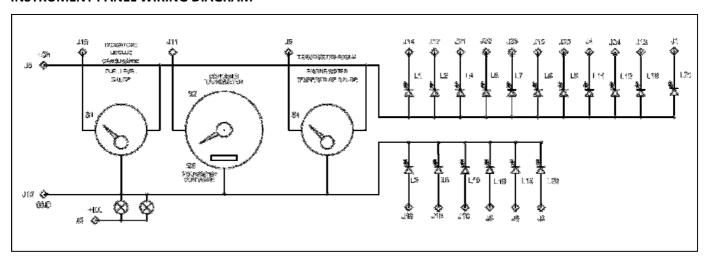


Figure 81

|      | DESCRIPTION                               | POLARIZATION |
|------|---|--------------|
| S1:  | Fuel Meter                                | Ohm          |
| S2:  | Engine Rpm Gauge.                         | Hz           |
| S3:  | Hour Meter                                | Hz           |
| S4:  | Engine Water Temperature Gauge            | Ohm          |
| J1:  | Battery Charge Warning Lamp               | Negative     |
| J2:  | Air Cleaner                               | Negative     |
| J3:  | Background Illumination                   | Positive     |
| J4:  | PTO Warning Light                         | Negative     |
| J5:  | (+) Supply                                | Positive     |
| J6:  | Oil Pressure Warning Light                | Negative     |
| J7:  | Air cleaner warning light.                | Negative     |
| J8:  | Hand Brake Warning Light                  | Negative     |
| J9:  | S4 Signal Inlet                           | Ohm          |
| J10: | Glow warning light.                       | Positive     |
| J11: | S2 Signal Inlet                           | Hz           |
| J12: | (-) Chassis                               | Negative     |
| J13: | PTO 540 Warning Light                     | Negative     |
| J14: | PTO 750 Warning Light                     | Negative     |
| J15: | High Beam Warning Light                   | Positive     |
| J16: | S1 Signal Inlet                           | Ohm          |
| J17: | Low beam warning light                    | Positive     |
| J18: | Fuel warning light                        | Negative     |
| J20: | 4WD Warning Light                         | Negative     |
| J21: | Water Temperature Warning Light           | Negative     |
| J22: | Left-hand-side turn signal warning light. | Positive     |
| J23: | Right-hand-side turn signal warning light | Positive     |
| J25: | PTO Warning Light                         | Negative     |
| J26: | S3 Signal Inlet                           | Negative     |
| J28: | 540/750 Signal Inlet                      | Negative     |
|      |   |              |

#### **OPENING THE BONNET**

To open the bonnet, pull the arm (1) seen in "Figure 81" to the right side of the tractor; this will release the latch. After unlocking, pull the bonnet up by holding it appropriately from split point on the seal.

Simply push down the bonnet to close it back. The bonnet will be locked automatically when fitted. If it is not fitted, pull the bonnet up by releasing the latch as described above and close it again.



## **A** CAUTION

Be careful not to crash the bonnet over your hands or other persons' hands or a body part.



Figure 82

#### **WASHING THE TRACTOR**

When pressure washing the tractor, safeguard the parts below and avoid washing the injection nozzles directly:

- Alternator
- Starter Motor
- Battery and terminals
- Front axle rod arms and steering cylinder
- Electric cables, relays, fuses, sockets and cable connections
- Isolation materials
- Safety warning labels

## **SECTION 6. STORING**

#### **STORAGE**

A tractor should be stored in a dry and protected place when it is left without use for some period. Leaving a tractor outdoors will result in shortened life of the tractor.

For storing the tractor please follow the procedures described below:

- After washing and cleaning the tractor be sure to lubricate it. And if hydraulic Implement is mounted apply grease to all the exposed cylinder or piston rod surfaces.
- Run the engine until oil in the crankcase gets warm enough, then drain oil and replace oil filter. Refill the crankcase with fresh oil specified in the "Lubrication Table" and run the engine for five minutes or so.
- 3. Store the tractor in the place where the tires may not be in the sun. Before storing wash and clean the tires. In case of long term storage jack up the tractor so that the tires may not be under any load. When the tractor is not jacked up, check and inflate the tires periodically.
- 4. After the engine gets cooled enough, pour one table-spoonful of engine oil from the air breather pipe. Be sure to reinstall the breather hose on the pipe after pouring oil. Unplug the engine stop solenoid to prevent engine from starting. To distribute the oil all over the cylinder walls, crank the engine for five or ten seconds. Plug the solenoid back in.
- Dry the engine cooling system and fill It with a mixture of antifreeze and water as specified on the container for the lowest expected temperature.
- 6. Fill the fuel tank with fuel, and clean the fuel filter
- 7. Plug up the end of the exhaust pipe.
- 8. Clean the air cleaner and then cover it so as to seal the air intake system.
- Check the battery for proper electrolyte level and specific gravity at least once a month. In order to increase the durability as well as prevent freezing, the battery should be kept fully charged all the time.

#### **REOPERATION AFTER STORAGE**

- Check to make sure that viscosity of the oil in the engine crankcase is as specified in "Lubrication Table".
- 2. Check transmission oil, Front Axle, Traction Case and brake fluid levels, replenish appropriately.
- 3. Remove the plug from the exhaust pipe.
- 4. Remove the cover over the air cleaner.
- 5. Check to make sure that the battery is fully charged and the terminal is clamped tightly enough.
- 6. Fill the fuel tank.
- 7. If the tractor is jacked up, bring it down.
- 8. Make sure that the main shift lever, speed shift lever, shuttle lever, PTO lever is in neutral and the parking brake is applied.
- 10. Just like in the case of storing, pour a table spoonful of engine oil from the breather pipe. Be sure to reinstall the breather hose on the pipe after pouring oil. Unplug the engine stop solenoid to prevent engine from starting. To distribute the oil all over the cylinder walls, crank the engine for five or ten seconds. Plug the solenoid back in.
- Start the engine as described in "Starting The Engine" and let it run slowly. Do not accelerate the engine rapidly or operate it at high speed immediately after starting.
- 10. After starting, check the functions of the tractor such as dashboard lights, hydraulic lift, steering, braking, shifting, operation at low speed (max. 5km/h) and then repeat the control at higher speeds (max. 10km/h); if you observe any trouble, consult your dealer immediately.

## **SECTION 7. TECHNICAL SPECIFICATIONS**

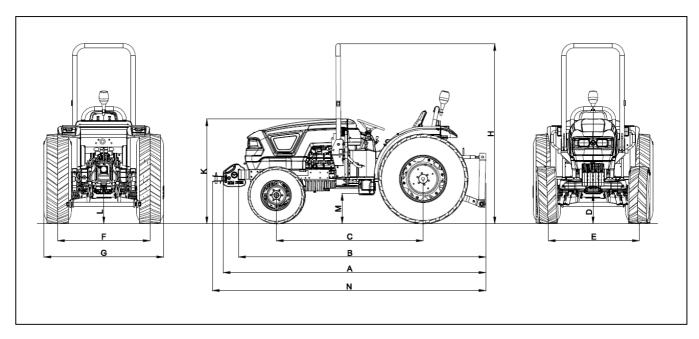


Figure 83

|                                     | CODE | UNIT | F           |
|-------------------------------------|------|------|-------------|
| DIMENSIONS                          |      |      |             |
| Total Length (Inc. Front Hitch)     | N    | mm   | 3570        |
| Total Length (Inc. Front Weights))  | Α    | mm   | 3410        |
| Total Length                        | В    | mm   | 3210        |
| Wheel Base                          | С    | mm   | 1750 - 1900 |
| Height over Hood                    | K    | mm   | 1195 - 1295 |
| Height over ROPS                    | Н    | mm   | 2235 - 2335 |
| Ground Clearance below Front Axle   | D    | mm   | 285 - 385   |
| Ground Clearance below Transmission | M    | mm   | 328 - 428   |
| Ground Clearance below Rear Hitch   | L    | mm   | 385 - 485   |
| Front Track Width                   | Е    | mm   | 1020 - 1325 |
| Rear Track Width                    | F    | mm   | 1020 - 1315 |
| Total Width                         | G    | mm   | 1340 - 1675 |
| WEIGHTS                             |      |      |             |
| Excluded Additional Weights         |      | kg   | 1600        |
| Included Additional Weights         |      | kg   | 1750        |
| Max Loaded Weights (*1)             |      | kg   | 2750        |

<sup>(\*1):</sup> Max loaded weight is 2724 kg for tractors with tires 7.00-12  $^{\sim}$  320/70R20.

Table 8: Technical Specs

| MODEL                     | UNIT    | TARAL 850    | TARAL 855    | TARAL 860    | TARAL 856    |
|---------------------------|---------|--------------|--------------|--------------|--------------|
| ENGINE                    |         | Kioti        | Kioti        | Kioti        | Perkins      |
| Emmision                  |         | Stage IIIA   | Stage IIIA   | Stage IIIA   | Stage IIIA   |
| Max Power (DIN70020)      | HP@rpm  | 50@2600      | 55@2600      | 60@2600      | 56@2600      |
| Max Torque                | Nm@rpm  | 165@1700     | 183@1700     | 190@1700     | 185@1800     |
| Max Speed                 |         | 2800±50      | 2800±50      | 2800±50      | 2800±50      |
| Idle Speed                |         | 1000±50      | 1000±50      | 1000±50      | 800-1400     |
| Diameter / Stroke         | mm      | 83 / 92.4    | 87 / 92.4    | 87 / 102.4   | 84 / 100     |
| Number of Cylinders       |         | 4            | 4            | 4            | 4            |
| Aspiration                |         | Turbo        | Turbo        | Turbo        | Turbo        |
| Compression Ratio         |         | 21±0.2/1     | 21±0.2/1     | 21±0.2/1     | 23.3±0.2/1   |
| Compression Pressure      | kg/cm^2 | 33-38        | 33-38        | 33-38        | 33-38        |
| Injection Sequence        |         | 1-3-4-2      | 1-3-4-2      | 1-3-4-2      | 1-3-4-2      |
| Valve Clearance - Intake  | mm      | 0.2±0.05     | 0.2±0.05     | 0.2±0.05     | 0.2±0.05     |
| Valve Clearance - Exhaust | mm      | 0.2±0.05     | 0.2±0.05     | 0.2±0.05     | 0.2±0.05     |
| Dry Weight                | kg      | 256          | 256          | 256          | 230          |
| Radiator                  |         | Water Cooled | Water Cooled | Water Cooled | Water Cooled |
| Air Filter                |         | Dry Type     | Dry Type     | Dry Type     | Dry Type     |

Table 9: Engine Specs

|          |       |      | SPE        | ED (km/h) @ | 2800 engine | rpm        |
|----------|-------|------|------------|-------------|-------------|------------|
| Option   | Range | Gear | 320/70 R20 | 360/70 R20  | 320/70 R24  | 360/70 R24 |
|          |       | 1    | 0,22       | 0,24        | 0,25        | 0,27       |
| Creeper  | С     | 2    | 0,33       | 0,36        | 0,37        | 0,40       |
| ree      | C     | 3    | 0,51       | 0,54        | 0,57        | 0,61       |
| 0        |       | 4    | 0,77       | 0,82        | 0,86        | 0,92       |
|          |       | 1    | 0,76       | 0,81        | 0,85        | 0,91       |
|          | L     | 2    | 1,14       | 1,22        | 1,28        | 1,37       |
|          | _     | 3    | 1,74       | 1,86        | 1,95        | 2,09       |
|          |       | 4    | 2,62       | 2,80        | 2,94        | 3,14       |
| Standard |       | 1    | 3,88       | 4,14        | 4,35        | 4,66       |
|          | М     | 2    | 5,82       | 6,21        | 6,52        | 6,98       |
| tan      | IVI   | 3    | 8,88       | 9,48        | 9,95        | 10,65      |
| S        |       | 4    | 13,35      | 14,25       | 14,96       | 16,00      |
|          |       | 1    | 7,58       | 8,09        | 8,49        | 9,09       |
|          | н     | 2    | 11,36      | 12,13       | 12,73       | 13,62      |
|          | П     | 3    | 17,34      | 18,51       | 19,43       | 20,79      |
|          |       | 4    | 26,06      | 27,82       | 29,20       | 31,25      |

Table 10: Speeds via Tires.

NOTE: The table above indicates forward speeds. For reverse speeds, multiply the speeds on the table by 0.988.

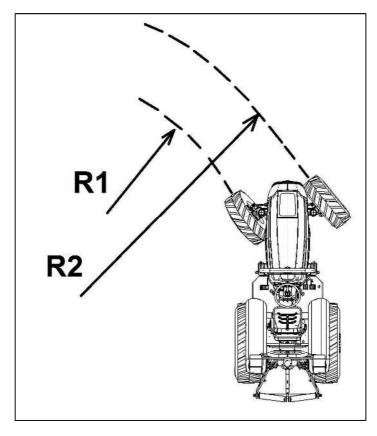


Figure 84

| Turning Radiuses Regarding Tires | Unit | 7.00-12<br>280/85R20 | 7.00-12<br>320/70R20 | 240/70R16<br>360/70R20 | 240/70R16<br>360/70R20 | 280/70R16<br>360/70R24 |
|----------------------------------|------|----------------------|----------------------|------------------------|------------------------|------------------------|
| Without Brakes                   |      |                      |                      |                        |                        |                        |
| Inner Radius (R1)                | mm   | 2700                 | 3000 - 3300          | 3000 - 3300            | 3100 - 3400            | 3100 - 3400            |
| Outer Radius (R2)                | mm   | 4000                 | 4300 - 4600          | 4300 - 4600            | 4400 - 4700            | 4400 - 4700            |
| With Brakes                      |      |                      |                      |                        |                        |                        |
| Inner Radius (R1)                | mm   | 2000                 | 2300 - 2650          | 2300 - 2650            | 2400 - 2750            | 2400 - 2750            |
| Outer Radius (R2)                | mm   | 3300                 | 3600 - 3950          | 3600 - 3950            | 3700 - 4050            | 3700 - 4050            |

Table 11: Turning Radius

#### **ENGINE LUBRICATION SYSTEM**

Lubrication PumpTrochoid Gear PumpFilterCartridge Type, PaperOil Pressure0.4 kgf/cm² (at idle)

#### **ENGINE SPEED GOVERNOR**

Speed Governor Type Mechanical, Centrifuge

#### **TRANSMISSION**

Gear Range12 Forward 12 ReverseMain ShiftingSynchromeshShuttle ShiftingSynchromeshMaximum Speed32 km/hFilterCartridge Type, Paper

Filter Sensor Pressure Cartridge Type, Paper

6.3 kgf/cm<sup>2</sup> (absolute)

#### **CLUTCH**

Clutch Type
Clutch Stage
Clutch Size
Clutch Material

Dry Type
9"
Clutch Material

Organic

### **DIFFERENTIAL LOCK**

Control Type Electro Hydraulic
Control Method Button

Hydraulic Pressure 18 bar Deactivation Method Spring

#### **COOLING SYSTEM**

Radiator Capacity

Radiator Type

Copper

Radiator Cap Pressure

1 bar

Circulation Pump

Centrifuge

Fan Diameter

Ventilation Direction

5 liters

Copper

4 bar

Liters

Li

#### **AIR CLEANER**

Filter Type Dry Number of Elements 2

Filter Sensor Pressure 54 mbar (absolute)

#### **FUEL SYSTEM**

Fuel Diesel

Fuel Filter Cartridge Type, Paper

Fuel Pump Sequential

Fuel Tank Material PE

Fuel Tank Capacity 32 liters

#### **HYDRAULIC PUMP**

Pump Type Gear Pump

Number of Sections 2

Pump 1 Flow Rate 7.2cc/rev (18.7 l/d @2600)

Pump 1 Pressure 120 bar

Pump 2 Flow Rate 12cc/rev (31.2 l/d @2600)

Pump 2 Pressure 180 bar

#### **BRAKES**

Brake Type Oil Bath
Disc Number 4 (2+2)
Disc Material Organic
Braking Mechanism Hydraulic

Parking Brake Independent, Mechanical

#### **STEERING**

Control Steering Cylinder
Control Type Hydrostatic

Maximum Steering Wheel Lock 1.5

#### **FRONT AXLE**

Type 4WD

Maximum Oscillation Angle 12°

Maximum Turning Angle 45°/40°

Toe-in Value 0 – 90 mm

#### **REAR HITCH**

Type Fixed
Max. Vertical Load 400 kg
Max. Horizontal Load 5000 kg

#### **MAXIMUM AXLE LOADS**

Front Axle 1000 kg
Rear Axle 1750 kg

NOTE: Maximum front axle load is 975 kg when 7.00-12 front tire is used.

#### **POWER TAKE-OFF**

Measure 1-3/8" 6spline (ISO500)

 Engine-driven PTO RPM
 540
 540 @ 2540

 Engine-driven PTO RPM
 750
 750 @ 2600

Wheel driven PTO RPM 11.076 x Wheel Rot.

## **HYDRAULIC SYSTEM**

Control Functions Position, Depth,

Floatation & Combined

Cylinder Type and Number Single Effect, 2

Safety Valve Pressure 180 bar

External Power Output 3/8" Quick-Fit Coupling

#### **3P LINKAGE SYSTEM**

Class Category 2 (CAT-II)

Lift (Equipment Linkage Point, Vertical)

Center Arm Pin Hole Dia

25.8 mm

Lifting Arm Pin Hole Dia

29 mm

#### **ELECTRIC**

Battery 12V 75Ah

Chassis Type Negative (-) Chassis

Alternator 45A
Starter Motor 1.7 kW
Glow Plug 30A

#### **CAPACITIES**

Fuel Tank32 litersCooling Water9 litersEngine Oil9 litersTransmission Fluid22 litersFront Axle Oil12 liters

Reverse Traction Oil 3 liters (1.5+1.5)
Brake Fluid 200 cm³ (cc)

## **UNIT CONVERSION TABLE**

| LENGTH             |                         |                   |                          |
|--------------------|-------------------------|-------------------|--------------------------|
| 1 inch             | 0.0254 m                | 1m                | 39.37 inches             |
| 30.48 cm           | 0.3048 m                | 1m                | 99.97 cm                 |
| 0.91 m             | 0.9144 m                | 1m                | 1.00 m                   |
| 1 statute miles    | 1,609 m                 | 1m                | 0.00062 statute miles    |
| 1 nautical miles   | 1,852 m                 | 1m                | 0.00053 nautical miles   |
| 1 Haddical Hilles  | 1,032 111               | 1111              | 0.00055 Hautical Hilles  |
| VOLUME             |                         |                   |                          |
| 1 US ounces        | 29,574 cm <sup>3</sup>  | 1cm <sup>3</sup>  | 0.0338 US ounces         |
| 1 Imperial ounces  | 28,413 cm <sup>3</sup>  | 1cm <sup>3</sup>  | 0.0352 Imperial ounces   |
| 1 US gallons       | 3785.43 cm <sup>3</sup> | 1cm <sup>3</sup>  | 0.00026 US gallons       |
| 1 Imperial gallons | 4546.09 cm <sup>3</sup> | 1cm <sup>3</sup>  | 0.00022 Imperial gallons |
| 1 US pints         | 473.17 cm <sup>3</sup>  | 1cm <sup>3</sup>  | 0.0021 US pints          |
| 1 Imperial pints   | 568,261 cm <sup>3</sup> | 1cm <sup>3</sup>  | 0.0017 Imperial pints    |
| 1 liters           | 100 cm <sup>3</sup>     | 1 cm <sup>3</sup> | 0.001 liters             |
|                    |                         |                   |                          |
| MASS               |                         | 1 -               | 0.025                    |
| 1 ounces           | 28.35 g                 | 1g                | 0.035 ounces             |
| 1 pound            | 453.59 g                | 1g                | 0.0010 kg                |
| TEMPERATURE        |                         |                   |                          |
| °F                 | °C*9/5+32               | °C                | (°F-32)*5/9              |
| °K                 | °C+273.14               | °C                | °K-273.14                |
|                    |                         |                   |                          |
| FORCE              |                         | 11£               | 2 204 II-f               |
| 1 lbf              | 0.45 kgf                | 1kgf              | 2,204 lbf                |
| 1 ozf              | 0.028 kgf               | 1kgf              | 35.27 ozf                |
| 1 poundal          | 0.1383 N                | 1kgf              | 70.93 pdl                |
| POWER              |                         |                   |                          |
| 1HP (metric)       | 0.7355 kW               | 1kW               | 1.359 HP (metric)        |
| 1HP (UK)           | 0.7457 kW               | 1kW               | 1.341 HP (UK)            |
|                    |                         |                   |                          |
| TORQUE             |                         | 411               | 0.05    6:               |
| 1 lbf-in           | 0.1129 Nm               | 1Nm               | 8.85 lbf in              |
| 1 ozf in           | 0.00706 Nm              | 1Nm               | 141.61 ozf in            |
| PRESSURE           |                         |                   |                          |
| 1 psi              | 6895 Pa                 | 1Pa               | 0.000145 psi             |
| 1 Torr             | 133.32 Pa               | 1Pa               | 0.0075 Torr              |
| 1 bar              | 100 kPa                 | 1kPa              | 0.01 bar                 |
| 1mmSS              | 9.8 Pa                  | 1Pa               | 0.1019 mmSS              |
| 1mmHgS             | 133.32 Pa               | 1Pa               | 0.0075 mmHgS             |
| <u> </u>           |                         |                   |                          |

# **SECTION 8. TROUBLESHOOTING**

## **ENGINE STARTS DIFFICULT**

| Possible Cause  | Remedy  |
|---|---|
| Increased fuel thickness or viscosity.                                  | <ul> <li>Check fuel tank and fuel filter.</li> <li>Remove water, dust and other dirt.</li> <li>As the filter is used to clean the entire fuel, replace the filter if there is water or foreign matter on it.</li> </ul>   |
| Air or water penetration into the fuel system                           | <ul> <li>The fuel pump will not function properly if there is air in the fuel filter or injector pipes.</li> <li>Check if the fuel tank cap is loose to ensure proper fuel pumping pressure.</li> <li>To remove all the air from the fuel system, follow the procedures described in the manual.</li> </ul> |
| Soot accumulation on the injection nozzle hole                          | <ul> <li>This occurs when the fuel is contaminated with water or dirt. Clean the injection nozzle without damaging the hole.</li> <li>Check if the injection nozzle functions properly; if not, replace the injection nozzle.</li> </ul>  |
| Valve clearance out of range  | - Adjust the valve clearance  |
| Valve leakage   | - Tighten the valve.  |
| Incorrect fuel injection timing   | - Adjust the injection timing.  |
| Engine oil thickens in cold weather, slowing down the engine operation. | - Replace the oil with an oil type suitable for the weather conditions.   |
| Low compression pressure  | <ul> <li>It is caused by bad valve adjustment or when the piston, piston ring or liners are over worn.</li> <li>Replace wearing parts with new parts.</li> </ul>  |
| Empty battery   | <ul> <li>Recharge the battery</li> <li>Use a pressure reducing device.</li> <li>Remove and recharge the battery when the tractor Is not in use, especially during winter, and reconnect it when you will use the tractor.</li> </ul>  |
| Moving parts overheat   | <ul> <li>Check the engine lubrication system.</li> <li>Check the engine filter for congestion; replace it if congested.</li> <li>Check the crank shaft end play.</li> <li>Check injection timing.</li> </ul>  |
| Injection pump wear   | <ul> <li>Avoid using low quality fuel; this may cause pump wear. Use diesel fuel number 2 only.</li> <li>Check fuel injection pump elements and intake valve and replace these parts if necessary.</li> </ul>   |

## **BAD EXHAUST COLOUR**

| Possible Cause               | Remedy  |
|------------------------------|---|
| Deteriorated injector pump   | - Consult your dealer for repair.   |
| Low fuel quality             | <ul> <li>Use high quality fuel.</li> <li>Diesel No.2 for over 10°C</li> <li>Diesel No 1 for below 10°C</li> </ul>   |
| Deteriorated injector nozzle | - Replace with a new part if necessary.   |
| Combustion interrupted       | - This problem is caused by bad pulverization, improper injection timing, a problem with the injection system, incorrect valve adjustment or bad compression. |

## **ENGINE STOPS ABRUPTLY**

| Possible Cause               | Remedy  |
|------------------------------|---|
| Fuel leakage or out of fuel  | - Check the fuel tank and refuel if necessary |
| Tuer reakage or out or ruer  | - Check the fuel system for air or leakage.   |
| Deteriorated injector nozzle | - Replace with a new part if necessary.       |
|                              | - Check the oil level with oil dipstick       |
| Moving parts overheated      | - Check the lubrication system.               |
| World parts overfleated      | - Check the oil filter.                       |
|                              | - Check the crank shaft end play.             |

## IN CASE ENGINE IS STOPPED ABRUPTLY

| Possible Cause                     | Remedy  |
|------------------------------------|---|
| Speed increases/decreases abruptly | - Consult your dealer for repair.   |
| Low fuel quality                   | <ul> <li>Use high quality fuel.</li> <li>Diesel No.2 for over 10°C</li> <li>Diesel No 1 for below 10°C</li> </ul>   |
| Deteriorated injector nozzle       | - Replace with a new part if necessary.   |
| Combustion interrupted             | - This problem is caused by bad pulverization, improper injection timing, a problem with the injection system, incorrect valve adjustment or bad compression. |

## TRACTOR IS NOT STARTING

| Possible Cause                                      | Remedy  |  |
|---|---|--|
| No sound from starter motor                         | <ul> <li>Safety switches may be on. Move the PTO shaft and shuttle shift lever to neutral and depress clutch pedal all the way.</li> <li>One or more of fuses may be damaged; check the fuses and replaced damaged ones.</li> <li>Ignition or starter circuit wires might be damaged; consult your dealer.</li> </ul> |  |
| Starter motor starts but the engine does not start. | <ul> <li>The battery charge condition might be insufficient. Check the battery charge condition and recharge if insufficient.</li> <li>Glow relay or plugs might be not functioning, consult your dealer.</li> <li>Engine oil might be thickened; check the engine oil and replace it if necessary.</li> </ul>        |  |

## TRACTOR IS NOT MOVING WHILE ENGINE IS RUNNING

| Possible Cause   | Remedy  |  |
|--|---|--|
| Main shift lever or gearshift lever on<br>Neutral position | - Move the shift levers to the position appropriate for the desired road speed. |  |
| Parking brake is applied.                                  | - Deactivate the parking brake.   |  |
| Unadjusted foot clutch                                     | - Get the foot clutch adjusted.   |  |

## **3 POINT LINKAGE SYSTEM IS NOT MOVING**

| Possible Cause                            | Remedy  |  |
|---|---|--|
| Congested oil filter                      | <ul><li>Replace the transmission fluid filter with a new one.</li><li>Control valve might be broken; consult your dealer.</li></ul> |  |
| 3 point linkage system does not move down | <ul><li>Move the hydraulic lever to down position.</li><li>Release the valve lock.</li></ul>  |  |
| Hydraulic power outputs do not work       | - Dispensing valve might be broken; consult your dealer.  |  |

## **BATTERY PROBLEMS**

| Possible Cause                       | Remedy   |  |  |
|--------------------------------------|--|--|--|
| Low electrolyte level                | - Add treated water and recharge for a long time.  |  |  |
| The battery does not recharge        | <ul> <li>As the current of the alternator is very high, the plates are displaced or short-circuit occurred. Reduce the charging current of the alternator and replace the faulty battery.</li> <li>The battery was not used for a long time. Remove the battery when the tractor is not in use and recharge it regularly. Replace the faulty battery.</li> </ul> |  |  |
| Terminals highly corroded            | - The connections are loose or the current of the alternator is too high. Reduce the charging current of the alternators, clean the terminals and tighten thoroughly and grease them.  |  |  |
| Electrolyte level decreases suddenly | <ul> <li>Excessive charging causes overheating; reduce the charging current of the alternator.</li> <li>Check the body of the battery for cracks and replace it is cracked.</li> </ul>   |  |  |

## **A** CAUTION

FOR CONDITIONS THAT ARE NOT DESCRIBED IN THE INSTRUCTION MANUAL, PLEASE CONSULT YOUR DEALER.

IN CASE OF FAILURE TO USE THE MACHINE PROPERLY AS INSTRUCTED IN THIS BOOK, ALL RESPONSBILITY MUST BE UNDERTAKEN BY THE USER.

TARAL reserves the right to change tractor design and specifications shown in this Instruction Manual at any time without prior notice.



Taral Tarım Makina ve Aletleri Sanayi A.Ş. Maltepe Mah. Hastane Yolu Sok. No:1 P.K. 34010 Zeytinburnu/İSTANBUL

Tel: +90 212 5679550 (Pbx) Fax: +90 212 6740679 +90 212 6121239

e-mail: info@taral.com web site: http://www.taral.com

## **DEALER**